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# FEEDING, DIET

AND THE

## GENERAL CARE OF CHILDREN

A BOOK FOR MOTHERS AND  
TRAINED NURSES

BY

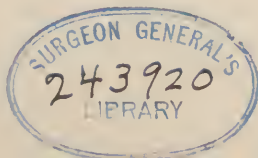
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ILLUSTRATED



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THIS BOOK  
IS AFFECTIONATELY DEDICATED TO  
MY WIFE



## PREFACE.

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It has been the purpose of the author to make the book "educational."

In the chapters on Sickness and Disease, not only the causes and symptoms have been outlined, but the "why" and the "wherefore," have been emphatically explained. Treatment of the sick child, which should be undertaken only by the physician, has been omitted, but information which was thought to be helpful has been included. Every effort has been made to impress upon mother and nurse the principles for the prevention of disease. With a better knowledge of the underlying causes, it is hoped that they may work more intelligently with the physician, not without him. Both mother and nurse should share his confidence. Many suggestions, which have been found useful in the home, have been mentioned by the writer.

The author has tried to avoid an error common to many books, which assumes that the knowledge which should be imparted is already known. All details have been explained in a way which, it is hoped, will make their accomplishment easy.

It has seemed to the writer that the subject of food, with reference to the teeth, has been almost ignored. Its importance in this respect is evident, and is dealt with in the text.

Sample diet lists for the first twelve years of life, specifying varieties and definite amounts of food, with

their food values, for age, weight and height, are thought to be highly desirable, and are therefore included. Foods rich in vitamins, substances essential to life, are emphasized for the same reason.

Feeding intervals of four hours for infants are strongly advocated. Previously, these have not been advised in any work intended for mothers and nurses.

The author wishes to express his indebtedness to the following authors, whose works have been consulted: Drs. Julius H. Hess, Roger H. Dennett, Clifford G. Grulee, and Mary Swartz Rose, Ph.D.

Grateful appreciation is extended to the writer's secretary, Miss Jessie Henry, for her invaluable services in the preparation of this work.

ALBERT J. BELL.

Seventh and Race Streets,  
Cincinnati, Ohio.

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## PART I.

Feeding During the First Year.

Feeding After the First Year.

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## Breast Feeding.

### CHAPTER I.

#### Reasons for Nursing—The Expectant Mother— Woman's Milk.

##### REASONS FOR NURSING.

Woman's milk is best for infants because it is a perfect, well balanced food and is intended for their use. The various elements are found in proportions which adequately supply the needs of the growing organism for a definite period. Nature has in this manner provided for the child's care during the early months of life.

Except when in ill health, there is no reason why a mother should not nurse her child. The modern "rush and tear" and a lack of desire is responsible for many failures. It is the exceptional mother who, if she wishes to nurse, finds it impossible.

The number of those who have to resort to other methods may be greatly reduced by living a normal life. While "pampering" oneself is not necessary, the responsibility of caring for two instead of one, during the prenatal period as well as after the infant's birth, must be borne in mind.

Rules governing the nursing mother will be found in a later chapter. Our present concern is with the period before the birth of the infant.

### THE EXPECTANT MOTHER.

Our aim should include for the expectant mother as high a standard of physical perfection as possible. She must take daily exercise in the open air in amounts not sufficient to tire. Colds should be looked upon as "infections" and the cause determined. While a cough may be a simple bronchitis, if neglected, tuberculosis may result. It is of great importance that the action of the heart and kidneys are known to be in normal condition. Certainly a specimen of urine should be examined once a month, after the third month. During the eighth month at least two, and during the ninth month one, uranalysis each week must be insisted upon.

The diet exerts a marked influence upon both the expectant mother and the infant. Drinking sufficient water is usually much neglected.

**Diet.**—Iron is furnished palatably by beef, eggs, especially the egg yolk, oatmeal, whole wheat bread, spinach and nuts, such as almonds, peanuts and walnuts, and in lesser degree in other similar substances.

Calcium is contained in largest amounts in eggs (egg yolk), milk, cheese, oatmeal, cabbage, carrots, turnips, oranges, almonds, peanuts, and walnuts. Certainly an egg, two or three glasses of milk, a large saucer of oatmeal or other cereal daily and frequent selections from the remaining eatables mentioned above must be included in the general dietary for the mother, because calcium and other mineral salts, which are forming the infant's bones and teeth, are needed in abundance.

**Teeth.**—Cavities in the mother's teeth are apt to occur, because of lowered resistance, resulting, possibly in ill health from infection. The mother should be seen by the dentist every six to eight weeks for the first eight months to eliminate this source of danger.

Above all things there must be no worry nor fear over a possible inability to nurse the child. There is probably no good reason why this can not be done—if *there is the desire*. There should be a desire.

It is a responsibility of great importance for at least the first three months of life. The secretion of milk in the breasts is as much a part of the condition as the infant's birth.

It is a wise provision of nature that the quantity of milk so secreted is increased when the infant empties the breasts at regular intervals.

### CARE OF BREASTS.

**Before Birth.**—Use saturated solution of boracic acid around the nipples for the last few days, and absolute cleanliness always.

**After Birth.**—Cleanse before and after each nursing with a saturated solution of boracic acid.

### BREAST MILK.

**First Milk.**—This is called "colostrum" and lasts three or four days as such. The percentages of protein and salts are higher and the fat lower than in the later milk. While this changes markedly in the

first few days, there is no stability in its composition until the infant is about one month old.

**First Feeling of Fullness.**—This is due to a congestion and not to the secretion of milk.

**The Established Milk.**—This is the beginning of the permanent milk.

**Time it Appears.**—It usually flows freely on the third or fourth day.

**Composition.**—Milk, like all other foods, has five elements, namely: proteids, fats, carbohydrates (sugar) salts, and water; also vitamins, that is, substances essential for the growth of the organism. The water composes almost ninety per cent. of it. The salts are only a fifth of one per cent., the proteids, one and one-half per cent., the fat about twice that amount, and the sugar about twice as much as the fat. These elements are so proportioned as to make a well balanced food. This is not true of "all foods."

### PURPOSE OF EACH ELEMENT.

**The Proteids.**—They are used for building the tissues and are necessary for growth. Those contained in woman's and cow's milk are easily digested.

**The Fats.**—Fuel and heat are furnished by them. They also contribute to the making of bones, nerves and fat.

**Carbohydrates (sugar).**—These furnish fuel and heat and may in this respect take the place of fat.

**The Salts (lime, potash, sodium, etc.)**—They are used not only in the making of bone, but enter largely

into the chemical processes constantly going on in the organism.

**Water.**—It is the medium in which all other elements are placed, and is absolutely necessary to maintain life. It is also needed by the system for the purpose of carrying off waste material.

**Vitamines.**—Substances essential for growth. These are the Fat Soluble A and Water Soluble B ; also the Water Soluble C.

## CHAPTER II.

### First Day of Life—Nursing Proper—Nursing Rules for Mother.

#### FIRST DAY.

**Before the Milk Comes.**—No food.

**Caution as to Water.**—Avoid filling the infant with water until there is a disposition on its part to nurse the breast.

**After a Nursing.**—It is wrong to make a “drive” on water during the first day, or even the first few days. One or two teaspoonfuls may be given two or three times in the latter half of the first day, always after a nursing. The amount should be gradually increased during the next few days.

**Sugar.**—Leave this out of the infant’s drinking water.

**First Nursing**—(Time Consumed and Intervals).—

Four hours after birth. Time consumed—five to ten minutes. Intervals—every four hours.

#### NURSING PROPER.

**Nursing Period.**—Fifteen to twenty minutes (about ten minutes for the first two or three feedings).

The infant will obtain three-fourths of its food during the first ten minutes of the nursing; about two-thirds of this in the first five minutes. After ten minutes very little is consumed.

If, after ten minutes, the child usually seems satisfied, the nursing period need not be further prolonged.

**Withholding the Breast.**—Remove the infant from the breast two or three times, during the first ten minutes, to allow it to expel gas. If not effective, pat back while holding the infant over the shoulder.

If the mother and child are lying down, raise the infant's head and shoulders from the bed until the gas has been expelled.

**Awake.**—Keep the child awake and attending to the feeding.

**If Stops Nursing.**—The infant must wait until the next feeding time.

**Intervals (Four Hours).**—These should be four hours from the first day inclusive, to the end of the first year. Only under unusual circumstances is it necessary to depart from this rule.

The great majority of children will thrive on four-hour intervals.

**Awaken the Infant for a Feeding.**—Always awaken the infant when the feeding time is due.

**Benefits of Long Intervals.**—They avoid colic and discomfort, and are a source of happiness for mother and child.

Under very favorable circumstances woman's milk will leave the stomach in about two hours; cows' milk in three hours.

The importance of a period of rest between feedings is evident. Colic is not necessary.

**Shorter Intervals.**—Only when proven that the child is not doing well on four-hour intervals, should a change be made to shorter intervals. As soon as possible the four-hour schedule should again be resumed.

**One or Both Breasts.**—One breast at each feeding, and alternately at nursing periods, is best. The supply of milk depends upon the thorough emptying of the breast at each feeding.

**When There is Too Much Milk.**—The secretion of milk will become less if the infant only partially empties the breast.

**When the Milk is Insufficient.**—Both breasts are to be nursed. Next feeding, start with the breast last nursed. Decreasing the nursing intervals may help to increase the flow of milk.

**Position of the Child.**—The infant's head should rest upon the mother's arm, on the same side as the breast to be nursed, while the hand of that arm supports the back. The child's head is lower than the breast.

If the milk flows too rapidly, raise the infant's head so that the breast around the nipple points upward.

**Giving Water.**—This should always be given in a bottle, once or twice a day between nursings, when the breast milk is sufficient (amount referred to elsewhere). If an artificial feeding is given, there will be sufficient water in this. This is also true of a good breast feeding. If the infant refuses to take water, there is no reason for worry.

**Reasons for Giving Water.**—This accustoms the infant to a bottle in case weaning is necessary. This is the essential reason for giving it—that is, *so that the child will become accustomed to a bottle.*

The infant will receive a sufficient amount of water with its feedings.



## NURSING RULES FOR MOTHERS.

**Normal Life.**—Do everything in a normal way.

**Eating.**—Eat anything that agrees at regular times.

Milk in moderation, that is, two or three glasses, and a cereal daily, an egg, meat, green vegetables cooked less than half hour and fresh fruit, are to be included. A well balanced diet in quantity and quality is indicated. Drink water between meals.

The vitamine content of woman's milk depends largely upon the amount of green vegetables, *properly cooked* and fresh fruits, which are included in her daily dietary.

**Exercise.**—Walks each day in the open air are quite necessary. Activity in the house, though helpful, is not sufficient.

**Worry and Sleep.**—Nothing is more harmful to the secretion of milk than constant worry and an inadequate amount of rest. The effect upon the infant is noticeable.

**Fruits.**—Some variety should form a part of each meal, for their laxative effect, as well as their food value.

**Cathartics and Enemas.**—Both mother and child will suffer from the frequent use of drugs. Regularity should be insisted upon and, when something is necessary, an enema is most satisfactory.

### CHAPTER III.

Evidences of The Infant's Well Being—When Not Doing Well—Conditions Affecting Woman's Milk—Examination of Woman's Milk—Expressing Milk.

#### INFANT'S WELL BEING.

**Contented Between Feedings.**—That is, the infant acts anxious only a short time before the nursing period is due.

**Sleep.**—An infant sleeps the greater part of the time (see Table elsewhere), and will go to sleep immediately after a nursing.

**Urine.**—It is passed as often as once or twice an hour. (Table of amounts elsewhere.)

**Stools.**—One to three each day usually, but one is sufficient, if the size is satisfactory. When normal, they are "salve like," golden yellow and of sour odor.

**Meconium.**—The stools in the first twenty-four hours of life are a sticky, dark, greenish brown.

**Curds and Mucus.**—Both may be disregarded when the infant is doing well.

#### The Color of Stools.

**Green.**—If grass green, but the infant otherwise doing well, it is of no importance. Stools turn green when exposed to the air.

**Black.**—This is sometimes caused by medicine such as bismuth or charcoal.

**Pink or Blue.**—Neither are of any significance and are due to changes in the bile.

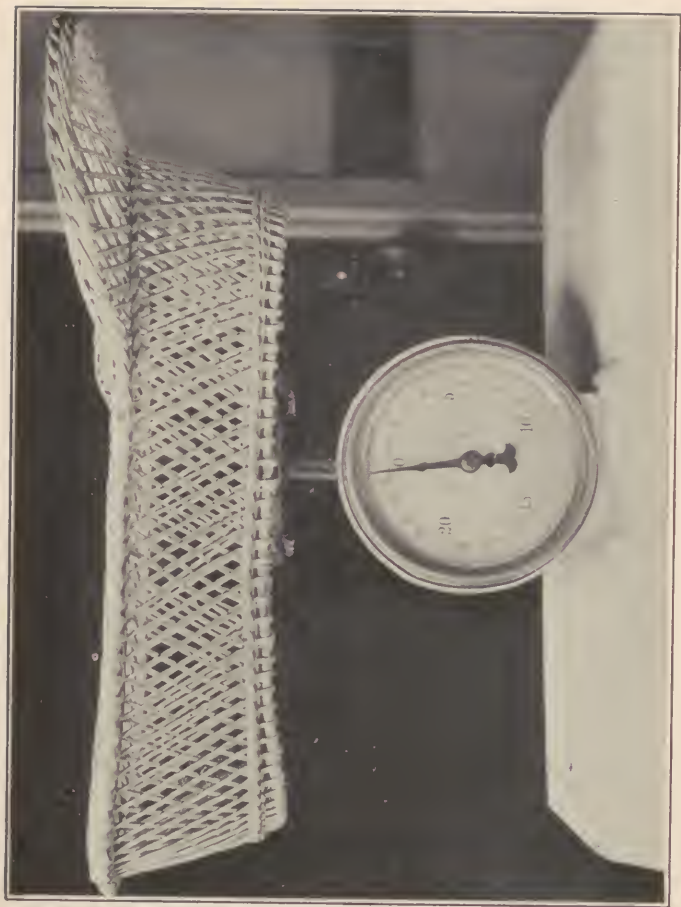


PLATE I.—Basket spring scales ordinarily in use. The infant must be placed directly over center or “zero” mark.



**Urine.**—For the normal secretion of urine, see Table elsewhere.

**Weight.**—This is very important. The breast-fed infant will gain on an average of six to eight ounces weekly for the first five months. During the remainder of the year, four to six ounces a week is satisfactory. This is an average and it is not necessary to gain that amount each week.

The birth weight, if an average weight, is doubled in five to six months; trebled by the end of the year.

**Weighing Times.**—Once a week, on the same day, before a feeding and without any clothes. Put the weight on the chart, and report this and the infant's general condition to the physician. This is the best way to keep the baby well.

**Conditions Which Influence Weight.**—The number of stools, amount of urine, excessive crying, changes in temperature, etc.

### WHEN THE INFANT IS NOT DOING WELL.

**Weight.**—This will be stationary or a loss.

**Sleep.**—When not willing to go to sleep after a nursing or awakens shortly; awakens in the night.

**Cries.**—When the infant cries considerably before a feeding time, and when not disturbed to change the diaper, etc. (It may also be due to pain.)

**Dissatisfaction.**—Stops nursing; then tries again. Repeats these attempts several times and shows worry over unsuccessful efforts.

**Prolonged Nursing and Restlessness.**—That is, much beyond twenty minutes, or shows dissatisfaction between nursings.

The weight curve on chart represents an average for a large group of healthy children in *which both boys and girls are included*. The average weight for a girl infant at birth is about seven pounds, while that for a boy is about seven pounds, eight or nine ounces. The curve for the girl infant continues to be *below* the curve for a boy infant throughout the first year. For the first twelve weeks the variation is approximately eight ounces, while from this period until the end of the twelve months, it is from one pound to one and one quarter pounds.

# WEEKS

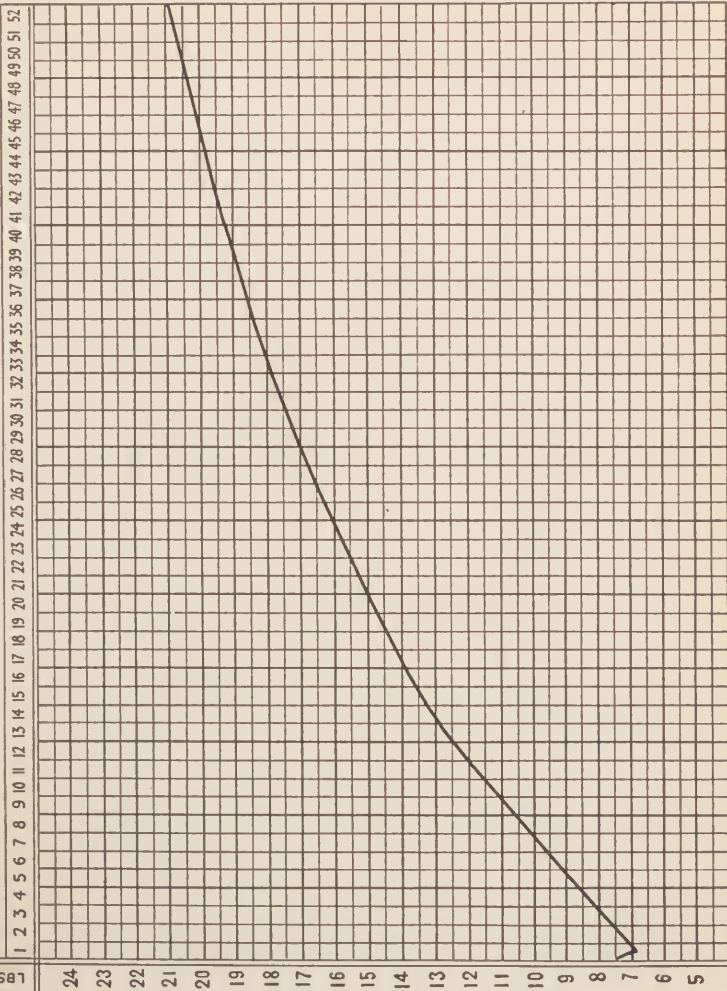


PLATE II.—Average weight curve for normal infants during the first year.





**Vomiting.**—So-called when a large, or the greater part of a nursing has been expelled. "Spitting up," one or two teaspoonfuls is not vomiting.

**Abnormal Stools.**—(See Abnormal Stools, under Artificial Feeding).

**Number.**—Too frequent, that is over three or four daily.

**Foreign Bodies.**—These, when swallowed, may be present in the stools.

**Worms.**—When found are always abnormal.

### NURSING DIFFICULTIES.

**Small Nipples.**—Pull the mother's nipples out gently before a nursing, so that the infant can take the breast.

**Large Nipples.**—If too large, try to prevent the infant's inserting the whole nipple into its mouth.

**Cracked Nipples.**—Touch with one or two per cent. of silver nitrate. If painful, use a nipple shield.

**Abscess of the Breast.**—The infant must not nurse this breast until the inflammation subsides, unless ordered to do so by the physician. Support with a firm binder or express the milk from the breasts. Use a breast pump only when other means are unsuccessful.

**Cold of Mother.**—The infant may continue nursing, but a handkerchief should be held between the mother's and infant's face.

**Menstruation.**—The child may not be affected by this. It is not a reason for weaning.

**CONDITIONS AFFECTING WOMAN'S MILK.****Improvement of Conditions on the Mother's Part.**

**Diet.**—Try to remedy errors in the diet, such as, too much rich food, or not enough milk, cereals or water, etc.

Certain articles of food which the mother has eaten may appear in her milk and give rise to disturbances of the infant's skin, such as, eczema or hives; of the respiration, abnormal rhythm, asthma, or bronchitis; and of the gastrointestinal tract, colic or diarrhea. Any or several foods may be the offending factors, such as eggs, cow's milk, meat, some vegetable or cereal. By means of skin tests for proteid sensitization the disturbing element of foods may be eliminated.

**Hygiene.**—If not drinking water between meals and walking each day in the open air, correct these errors.

**Worry and Sleep.**—Remember the nursing rules. Nothing is more harmful than constant worry and insufficient rest.

**Bowels.**—Constipation should be corrected by means of water, fruits, oatmeal, exercise, enemas, etc.

**Sickness.**—An effort should be made to discover and remove the cause.

**On the Infant's Part.**

**If the Infant is Nursing too Rapidly.**—Remove the infant from the breast occasionally.

**If Nursing too Long.**—Remember that fifteen to twenty minutes is enough.

**Intervals—Long.**—This is the best means of avoiding indigestion.

**Intervals—Short.**—Best when the infant can take only small quantities at a time.

**Too Large Nipples.**—Vomiting is caused by the nipple pressing upon the soft palate.

**If There is too Much Milk.**—Weigh before and after each nursing for twenty-four hours to determine the quantity.

**If There is too Little Milk.**—Weigh before and after each nursing for twenty-four hours to determine the quantity.

**Efforts to Increase the Breast Milk.**—If on the fourth or fifth day, the secretion of milk is insufficient, put the infant to the breast first, at regular intervals for ten to fifteen minutes, then express as much milk as possible into a sterile receptacle and feed this to the infant in a bottle. This routine must be continued with each nursing at regular intervals for days until enough milk is secreted.

The "expressing" may then be stopped.

**"Expressing Milk."**—This is done by hand. The breast is squeezed between the outstretched first (or index) finger and thumb, from one to two inches above the nipple. A downward motion is made, accompanied by a single, firm "jerk." This is repeated many times.

Failure at first is no cause for discouragement, as success may only be acquired by practice.

**Examination of Woman's Milk.**—*This is rarely worth while.* An analysis may show a normal amount of fat in milk which is disagreeing. Some other cause, undetermined by such an examination, is at fault. *Never wean because of an unfavorable analysis.*

## CHAPTER IV.

### Indications for Weaning—Mixed Feeding. Method of Weaning.

#### TEMPORARY CAUSES FOR WEANING.

**Mother's Illness.**—When slight, as abscess of the breast. Under certain conditions the child may continue to nurse the breast.

**Mother's Milk.**—To determine whether or not the milk is the cause of the disturbance, breast feedings are often temporarily discontinued.

**Vomiting and Diarrhea.**—These conditions occasionally necessitate weaning temporarily.

#### PERMANENT CAUSES FOR WEANING.

**Failure to Gain.**—After persistent efforts to improve both the infant's and the mother's condition.

**Acute Illness of the Mother, such as:**

**Pneumonia.**—If the attack is severe. Possibly there will be less cause for worry if she be permitted to continue nursing her child.

**Scarlet Fever, Measles.**—A nursing infant, under eight months, is less susceptible to scarlet fever than to measles. Neither are susceptible under six months of age.

**Whooping-cough.**—This is always very dangerous for the infant.

**Diphtheria.**—Nursing may be continued if the temperature of the infant is taken, and the throat ex-

aminated daily, or an immunizing dose of antitoxin given.

**Acute Tuberculosis or any Wasting Disease.**—This, or any severe infection, or any wasting disease, will necessitate weaning at once. It is as well a source of great danger to the infant.

If the tuberculosis is not active or acute ("latent"), that is, when fever is not present and organisms in the sputum absent, it is not necessarily a cause for weaning.

**Pregnancy.**—This is always an indication for weaning. The quality of the milk will become impaired and the infant suffer in consequence. That its effect upon the mother will be exhausting is self evident.

**Secretion of Milk Insufficient.**—After trying both breasts at a nursing, and shorter intervals, with failure to improve conditions.

**Quality of Food.**—Woman's milk is the ideal food. It is only the exceptional infant who is unable to thrive on it. Rarely is it a cause for weaning.

### MIXED FEEDING.

That is, Nursing the Breast together with Cow's Milk,  
or Some Other Form of Food.

**Complemental Feedings.**—This means that the amount of food which the baby requires is completed by giving cow's milk, or some other food, in a bottle.

The bottle should always be given last, unless otherwise ordered by the physician.

The average quantity of milk which the infant obtains from the breast is determined by weighing

before and after each nursing for twenty-four hours.

The amount lacking, that is, of a feeding of one to two ounces more than the child is months old, is given in a bottle. The maximum amount should not exceed eight ounces—rarely nine.

**Best Method.**—The *complemental* is best when endeavoring to stimulate the breast to secrete more milk.

**Supplemental Feedings.**—This means alternating between breast and bottle-feedings, that is, only the breast is taken at one feeding, and only a bottle at the next.

A better name is, “substitute feedings.” Only one or several bottles may be given.

#### OBJECTS TO BE GAINED BY SUPPLEMENTAL FEEDING.

**To Diminish the Amount of Milk.**—This usually happens eventually. At first, until the breasts adapt themselves to new conditions, the mother may complain of fullness.

**To Relieve Mother.**—If she wishes to omit one or more feedings.

It is well to be prepared with a proper formula for any emergency.

Its occasional use is not harmful and will determine the baby's ability to take a substitute food.

One bottle as a routine daily, is not advisable.

The child may become accustomed to taking fluids from a bottle, by using one always for the administration of water,—and this should be done at least once daily.

**WEANING.****Method of Weaning.**

**When to Commence.**—During the first part of the tenth or eleventh month, that is, when the infant is nine or ten months of age.

**Length of Time.**—Gradually, under ordinary circumstances. It is best to take from two to three weeks to complete weaning.

**Exceptions.**—Serious illness of the mother, etc. Under those circumstances, it would most likely be advisable to wean rapidly.

**Substitution of Bottles, or Supplementary Feeding in Weaning.**—Add only one bottle at a time at intervals of four days.

Observe the rules given under Artificial Feeding.

**Care of the Breasts.**—Apply a saturated solution of boracic acid to the nipples after nursing. If the breasts are full, the application of a breast binder, firmly applied, will usually control the secretion. If necessary “express” the milk by hand, or massage the breasts gently toward the nipple. The use of the breast pump is justifiable only when other means fail.



## CHAPTER V.

### Some Distressing Symptoms on the Part of the Breast-Fed Infant—Underfeeding.

#### SOME DISTRESSING SYMPTOMS OF INFANT.

**Colic.**—Too rapid or too frequent feedings are usually the cause. It is less likely to be due to the quality or quantity of the milk.

**Suggestions.**—Raise the infant's head and turn the breast upward, so that the milk will not run too freely. Remove the breast several times during a nursing.

**Intervals.**—Lengthen the feeding intervals so that more time will be given for digestion.

**Nursing Period.**—Shorten this. If over fifteen or twenty minutes, it is wrong. A period of ten minutes may be sufficient.

#### ON THE MOTHER'S PART.

(Remedial measures.)

**Quality of Mother's Milk.**—The milk is sometimes at fault, that is, it is "too rich." Usually it is the fat which disturbs.

**Investigate Diet of Mother.**—Try omitting various foods, certainly rich and greasy ones. More water should be drunk. This reduces the "richness," or fat in the milk.

**Use of Cathartics for Mother.**—They must be discontinued and the use of enemias substituted.



**Exercise, Sleep and Worry.**—Observe rules for nursing mother.

### ON THE INFANT'S PART.

(Remedial measures.)

**For Relief.**—Two or three teaspoonfuls of hot water with a pinch of sodium bicarbonate (baking soda), by mouth occasionally, or, an enema (one quart of tepid water with two to three level teaspoonfuls of baking soda) will relieve temporarily.

Try a hot water bag to the abdomen.

**Vomiting.**—Occasionally, or habitually, is usually indigestion the causes of which are similar to those of colic.

Lay the infant on the bed after a nursing and permit him to remain perfectly quiet.

**When Persistent.**—In young infants, the constant vomiting of most, or all the nursings, with loss of weight may be due to an obstruction at the outlet of the stomach (congenital pyloric stenosis). Surgery must be resorted to.

**Habit Vomiting or Rumination.**—It is so-called because of its resemblance to the act of "food regurgitation," seen in ruminating animals. Shortly after a feeding the child is observed to go through the motions, with his jaws and throat, as of swallowing. Food which is expelled without effort or force, is soon found in the mouth. This may be repeated several times until all of a feeding is lost. The nutrition of the infant becomes seriously impaired, if the habit is of long standing.

It is usually seen in nervous infants, under three months of age, who are readily affected by slight

causes, such as too much handling, noises, tight bands, etc.

These conditions should be corrected. Habit vomiting in many cases ceases after an infant has been given some thick cereal feedings or gruel which he cannot vomit. Water is offered between feedings to make up the deficiency in fluid.

In some instances, the habit of regurgitating foods, has been overcome by means of a bandage tied tightly under the jaws and over the head, immediately after a feeding. With a bandage so applied, any motion of the jaws is impossible.

In older children the habit of vomiting any food which is distasteful to them, or which they think they do not like, occurs not infrequently.

(See Acidosis.)

**Sickness.**—If sick, and accompanied by temperature (fever) and vomiting, the onset of a contagious disease must be considered.

**Loose Stools.**—Due to indigestion. It is safe to consider as probable, when the stools are loose, that the same causes which produce vomiting and colic, are responsible for the condition and use the same precautions.

Do not give sugar water. Handle the infant as little as possible. Give one or two enemas daily (baking soda or salt, two level teaspoonfuls of either to the quart), until better. Do not give a cathartic unless on the advice of a physician.

Milk of magnesia is best when any is used.

**Constipation of Infant.**

**Causes.**—Too little food. There may be a need of fruit juice, or solid food; constipation of mother,

abuse of enemas or cathartics for mother or child, not taking sufficient water between feedings, or the use of boiled milk.

**Constipation of the Mother.**

**Causes.**—Lack of fruit, vegetables, cereals and water, also proper exercise and the abuse of cathartics (on her part).

**Loss of Appetite of the Infant.**

**Cause.**—This will occur without any apparent reason. Do not try to force feedings at this time. Have the infant complete the nursing intervals. If the intervals are short, increase them. It is usually a temporary phase. An infant who never seems hungry, needs, either a change of food, or it is indicative of lack of normal development.

**UNDERFEEDING.**

**Insufficiency of Woman's Milk.**—While colic and vomiting are usually symptoms of indigestion and due to too rapid, or too frequent feedings, or to excess in quantity, or, impaired quality of the milk, there may be an insufficiency. Reducing the feeding intervals may stimulate the secretion of milk.

The amount of meats, cereals, eggs and milk in the mother's diet should be increased.

**When the Capacity of the Infant's Stomach is Small.**

—In this case, feed smaller amounts oftener.

**When the Baby is Sick and a Physician is Called.**—

Save the diaper so that the physician may see the stool. Remember the number of stools. Save a specimen of urine. Take the temperature yourself. Have the physician write the directions or write them yourself.

## CHAPTER VI.

### The Premature Infant—Woman's Milk from Other Sources.

#### THE PREMATURE INFANT.

The problem here is difficult and serious, and the resources of a capable physician are taxed to the utmost in caring for the infant.

**Woman's Milk.**—This is very *important* and its use may mean the saving of the infant's life. If the infant is obtaining some milk from the breast, continue the nursings and make up the deficiency—each time with a complemental feeding of “expressed milk.”

**When to Commence Nursing.**—Put the infant to the breast once or twice the latter part of the first day.

**Nursing Intervals.**—Commence regularly on the second day (the intervals are shorter than for a full time infant), that is, every two hours in the day time (until ten P.M.); during the night every three hours. If the infant is taking the food well, increase to two and one-half and three hours; later four hours.

**Length of Nursing Period.**—Less than five minutes at first.

**Giving of Water.**—It depends upon the infant's capacity and its ability to take milk.

**Avoid Filling with Water.**—While it is important not to interfere with the taking of milk, a premature  
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baby needs more water in proportion than a normal baby, because of the warmer temperature in which the infant lives.

**Amount.**—Two or three teaspoonfuls half way between feedings, and increase the amount later. Commence this on the first day.

**When Not Able to Take the Breast.**—Express the milk from the breast into a sterile glass, at regular intervals.

**Methods of Feeding.**—Feed with a medicine dropper or Breck feeder, if unable to take the bottle.

If the infant vomits, dilute the breast milk one-half with boiled water.

**Amount.**—Continue with one, then with two teaspoonfuls of the mixture at each feeding. If taken well, increase in the next few days gradually to one and one-half ounces (nine teaspoonfuls). During the second week this may be increased to two ounces, if the feeding has been taken well.

**When Breast Milk is Unobtainable.**—Resort to artificial feeding. Commence this on the second day if the breast milk is not secreted. It is dangerous to wait too long.

Encourage the secretion of milk by putting the infant to the breast, first at regular intervals for a day or two at the beginning. Continue the efforts to “express” the milk from the breasts at regular intervals, even if the infant is taking artificial food.

Albumin milk is probably the best artificial food for the premature infant at first. It may be easily prepared with an albumin milk powder, or by means of albumin milk in liquid form, to either of

which water is added to make the desired strength. These preparations are readily procurable.

In the beginning, it may be diluted, one-third milk and two-thirds water. Increase to half strength if well taken.

Skimmed milk or buttermilk may be used in place of albumin milk. Dilute at first one-third milk and two-thirds water. Later, half and half.

**Strengthening Feedings.**—This depends upon the infant's digestion and progress. Whole milk dilutions are probably unsafe under four months.

The nutrition is served by adding larger amounts of sugar. Dextri-Maltose, is the sugar of choice. By the tenth day, add one level teaspoonful of a maltose-dextrin compound to the total mixture, increasing gradually to three or four teaspoonfuls in the total mixture.

**Quantity at Each Feeding.**—It is the same as for breast milk.

### HEAT.

This is as important as food. If the infant becomes cold, collapse and "blueness" will occur, and often the infant cannot be revived.

Incubators are hardly practical outside of a hospital.

Beds with electrically heated water jackets are procurable.

### HYGIENE.

The infant may be placed in a small crib, well covered except for some space at the top for air, with

one or more hot water bottles or electric pads placed around it.

The temperature of the room, which should be small, must be kept at 87° F.

Have a pan of water in the room for evaporation.

**Handling Infant.**—This must be done as little and as quickly as possible, with no unnecessary exposure. The temperature of the room at this time, also when bathing, is the same. If very weak, feed in bed.

**Bathing.**—Sponge for cleanliness on the nurse's or mother's lap.

The premature infant is predisposed to rickets. As soon as the infant's digestion permits, it is advisable to commence the administration of cod-liver oil in small doses and increase to six teaspoonfuls daily. Only a pure form of codliver oil is efficacious. Many sold on the market are almost worthless.

## WOMAN'S MILK FROM OTHER SOURCES.

**When the Milk of the Infant's Mother Fails.**—An effort must be made to procure this for delicate infants.

**Sources.**—From a wet-nurse in the home. Such a one may be procured through the Social Service of a general hospital.

Requirements of a wet-nurse.—Good health.

This must include an examination of the breasts, skin, an inquiry into her history for miscarriages, a Wassermann test for syphilis, examination of the chest to rule out tuberculosis, an examination of



urethral and vaginal smears, evidences of other sickness (temperature, etc.), her teeth, and the condition of her own child, which she should keep with her.

Her age should be between eighteen and thirty-five; her baby's age, between two and eleven months.

Other sources from which to procure woman's milk, are from a supply obtainable from a general hospital, or from some private source.

**Care of Woman's Milk.**—This is the same as for cow's milk. Cover the receptacle containing the milk, at once, and place immediately next to the ice. Warm before using.

**Methods of Procuring.**—The milk must be expressed into a sterile glass from the donor's breast at regular intervals. The time when she is nursing her own child will be most convenient for this. Her own baby should then empty this breast and make up the required amount necessary from the other breast for its own feeding. The last breast nursed is the one from which to take the milk at the end of the next nursing interval.

**Quality of the Milk.**—For a delicate baby, that is, one who vomits, the first milk from the breast is the best, as it is less rich in fat.

If the infant vomits, it is well to use only the milk which comes first.

## METHODS OF FEEDING.

**From a Bottle.**—If possible, or, if too weak, use a medicine dropper or a Breck feeder.



**Intervals.**—These are the same as described for Premature Infants, that is, two, two and one-half, and three hours, depending on the amounts taken.

**Amounts.**—The same as for premature infants, that is, from a half to two ounces, increasing as the infant shows ability to retain feedings.

**Dilution.**—Try undiluted. If the infant vomits, dilute one-half with boiled water.

## Artificial Feeding.

### CHAPTER VII.

#### "Varieties of Milk"—Method of Producing Certified.

##### WHAT IS MEANT BY ARTIFICIAL FEEDING.

This consists of giving to an infant some substitute food in a bottle, when woman's milk is unobtainable.

The advantages of woman's milk have been dwelt upon in an earlier chapter. When feeding artificially, an attempt is made to adapt the new food to the requirements of the child, and to imitate, as nearly as possible, woman's milk.

##### GOAT'S MILK.

This is used to some extent in this country as a food for infants. This is especially true of certain sections, where it is enthusiastically urged for this purpose. In Europe, more particularly Italy, Switzerland, France, and Germany, it is very popular. A great many infants to whom it has been given, have thrived upon it.

The goat is a clean animal, almost immune to tuberculosis and produces milk, usually at a low cost, where the amount of space available is small.

While there is little difference between the percentages of fat and protein of goat's and cow's milk, human milk has much less of either, especially the protein. The sugar is slightly less than in cow's milk and much less than in human milk.

An ordinary goat will furnish about two quarts of milk daily. The milk cannot be skimmed.

### COW'S MILK.

If woman's milk cannot be obtained, cow's milk is the *next best food* for the infant.

**Composition.**—It has the same elements as woman's milk.

#### Difference Between Woman's Milk and Cow's Milk.

**Proteids.**—The amount is more than twice as much in cow's milk.

**Fats.**—The percentage is a trifle higher in cow's milk. While most of the fat is the same in each, there is more of a kind common to both, in cow's milk, which is more difficult for the infant to digest.

**Sugar.**—It is milk sugar in each, but about one-third more in woman's milk.

**Salts.**—In cow's milk there is almost four times as much. The infant takes from this only what it needs.

**Water.**—This is about the same in each.

**Vitamines.**—Substances necessary for growth. These are Fat Soluble A, and Water Soluble B; also the Water Soluble C.

**Purpose of Each Element.**—The same as in breast milk.

### COW'S MILK AS A FOOD.

**Its Importance.**—It is the next best food.

**From One Cow or More.**—Milk from several cows or a herd should be used, because the dilution of the

whole is better. If one cow is sick, it may not appear in the milk in sufficient quantity to harm the infant.

When one cow supplies the milk, the infant will receive the full effect of the impairment.

**What Kind to Use.**

### **CERTIFIED MILK.**

**Definition.**—A milk of high grade and cleanliness, which is produced under the auspices of a Medical Milk Commission.

It was originated by Dr. Henry L. Coit, Newark, N. J., in 1892.

### **REQUIREMENTS OF CERTIFIED MILK.**

#### **Methods of Producing.**

**Cleanliness.**—It must be produced under hygienic conditions.

**Cows.**—The cows must be healthy and tested for tuberculosis and other diseases several times yearly.

**Bacteria.**—The bacterial count must be under ten thousand per cubic centimeter.

**Fat.**—The fat must be between 3 and 3.7 per cent. Infants do better on milk which is not rich. (Ordinary cow's milk is 4 per cent.)

Very stringent rules for producing and handling milk must be adhered to.

### A MODEL DAIRY FOR PRODUCING CERTIFIED MILK.

A brief description of a model dairy at Lebanon, Ohio, will illustrate the methods employed.

**Stable.**—A suitable number of windows for air and sunlight are required. The floors are of cement and are flushed four times daily.

**Cows.**—Holsteins are selected because of the low fat content of their milk, in the proportion of nine to one Jersey—the latter being used to prevent too low a percentage of fat.

**Feeding.**—The cows are not permitted pasture feeding, but are fed by weight, certain amounts of dry foods (ensilage and concentrated foods, cotton seed meal, bran, corn meal, alfalfa or clover hay), according to the milk they produce.

**Milking.**—This is done twice a day, by hand, at regular times. Those milking wear kahki suits. (In most certified dairies white is worn.) Their hands are scrubbed with soap and water before milking. The udder is washed with water, or soap and water (if dirty), before milking. The cans are scalded or sterilized. (The method of milking through cotton has been discarded.) The cans are immediately covered, the milk bottled and sealed with the Milk Commission stamp, and rapidly cooled to 40° F., at which temperature bacteria do not grow.

**From Dairy to Infant.**—The bottles are iced while on the wagons. The average time between milking and delivery at the house is eighteen hours, maximum, twenty-four hours.

### INSPECTED MILK.

**Not for Infants.**—This is mentioned merely to show that it is not suitable for infants. Jersey and Guernsey, the former very, and the latter, moderately, rich in fats, are used in its production. It is required to contain over 4 per cent. fat. It should certainly not be given to a child under two years of age. The bacterial count must be under fifty thousand per cubic centimeter.

**“Special Milk for Babies.”**—These are usually unsafe and are frequently very rich in fats.

### MARKET MILK.

**Market Milk.**—There is no legal bacterial requirement, but the average in Cincinnati is one hundred and fifty thousand bacteria per cubic centimeter, and must be pasteurized.

### MILK FROM PRIVATE COW OR DAIRY.

There should be an effort to follow the methods of a model dairy as much as is practicable with conditions.

**Important Points.**—Any dairy or private barn can produce clean milk. Only healthy cows, tested yearly according to government rules, should be used. Bright airy stables, with cement floors, if possible, are desirable. Flush floors around the cows, at least, before milking. The hands should be scrubbed with soap and water before milking; a kahki suit should be worn. Wash the udders of the cows, or wipe them with a damp cloth, before milking. Wash the cans with soap and water and scald before using.

Milk directly into the pail by hand, and not through cotton. Cover the can at once and cool rapidly, with the best means at hand. If ice is not to be had, set in cold spring water.

There may be perfect cleanliness, but, if the can is not *covered immediately*, and constantly thereafter, and *rapidly cooled*, the germs or bacteria, will grow very fast.

**Care of the Milk in the Home.**—Place the bottles, unopened, next to the ice. If not in bottles, keep covered. If there is no ice, keep in a cool place, or in cold spring water.

**Frozen Milk.**—This causes chemical changes which are likely to upset the child. Boiling the milk will correct this condition.

**Thermos Bottles.**—Put the milk into the bottles cold, and heat before using. For the same reason, do not carry warmed milk in nursing bottles.

### S. M. A. (Synthetic Milk Adapted.)

**Composition.**—Protein, carbohydrate, salt, and water content similar to woman's milk. The butter fat is replaced by vegetable and animal fats made from cocoanut oil, butter, tallow, tallow oil, and codliver oil, because of their low volatile fatty acids which are similar to those found in woman's milk. Orange juice must be used in connection with it.

**Advantages.**—These are simplicity of application; indications for use and composition similar to that of woman's milk. The codliver oil contained in it is a preventive against Rickets. Vomiting and "spitting up" rarely occur.

## CHAPTER VIII.

### Modification of Cow's Milk—Cereals—Alkalies— Food Values.

#### MODIFICATION OF COW'S MILK.

**Why Necessary.**—We have seen that the percentage and quality of the elements vary from those of woman's milk. While the infant may be able to take whole milk as early as four or five months, or even earlier, it is unsafe and unnecessary. Many infants belonging to the ignorant classes unquestionably do so, successfully. It is often the "survival of the fittest."

Cow's milk is adapted to the calf which, in the first two or three days of life achieves a sturdiness which is only attained by the human infant at the end of the second year. Boiling the milk renders it more digestible.

#### WHAT DILUTING OR MODIFYING DOES.

**The Proteids.**—These are more than twice as much in cow's milk. While the proteids are rarely the source of trouble, some dilution is logical.

**The Fats.**—The fats cause more disturbance than any other element. A dilution of one-half to one-third is desirable at certain ages. Any fat deficiency may be made up by the addition of sugar, as far as fuel is concerned. The fats contain substances (vitamines), which are essential to growth. This



is not true of sugar but it may be overcome in other ways.

**The Sugar.**—This is one-third more in woman's than in cow's milk, but when diluted the percentage may be increased by the addition of sugar to the mixture. It compensates partially for any deficiency in fat. Too much sugar also causes great disturbance.

**The Salts.**—Almost four times as much in cow's milk as in woman's milk. In any dilution there is still enough.

**Vitamines.**—In addition, cow's milk contains substances (Fat Soluble A, and Water Soluble B), which are essential to growth; also Water Soluble C.

#### AMOUNT OF FOOD NECESSARY.

**Milk.**—Approximately one and one-half ounces of milk for each pound of the baby's weight, daily, will furnish safely, the proper percentage of proteid and fat for development and growth. For under-weight infants more is necessary.

**Sugar.**—Approximately one and one-half ounces by weight of sugar, daily, added to the milk, will furnish the requisite percentage of sugar for growth and development. This, together with the sugar contained in cow's milk, will average about 7 per cent., or the same as in woman's milk.

**Water.**—Until the end of the second month, add half water. From the beginning of the third until the end of the eighth month, add approximately one-third water. From the end of the eighth month until the end of the tenth or twelfth month, gradually

decrease the water, so that when the infant arrives at that age, just enough water is used to dissolve the sugar which is to be added.

#### ADDITION OF CEREAL, GRUELS OR CEREAL WATER.

**Objects and Varieties Used.**—It is for the purpose of softening or breaking up the milk curds in the stomach to aid digestion. Barley or oatmeal water are most often selected.

**Value.**—There is rarely any necessity for their use, but there is no objection except the additional trouble. Boiling the milk will serve the same purpose.

#### ADDITION OF ALKALIES.

**Varieties Used.**—Lime water, sodium citrate, and sodium bicarbonate (baking soda). The latter should always be added after the milk has been heated. Squibb's sodium bicarbonate should be used internally.

**Value.**—There is no more necessity for their use than the cereals. Both they and the cereals assist in softening the curd. Boiling the milk will answer the same purpose.

#### FOOD REGARDED AS FUEL.

The human machine may be compared to an engine which takes so much fuel to run it. For the engine, the coal is the fuel; for the human machine, the food. For us, the food does more than "run the engine," as it also repairs breakage and waste.

**Calories Fuel or Food Units.**—It takes so many shovelfuls, or bushels, or tons of coal to run the engine daily. It takes so many calories of food daily for each pound of weight to answer our requirements—just so much and no more for efficiency—we do no better if we exceed this amount.

**“Stuffing, Taking too much Food.”**—Nature has provided us with a “thermostat,” or “regulator,” which throws off, as waste, any amount of food taken in excess.

**Food Injury or Intolerance.**—There is a limit to the working of this “regulator.” From long abuse, some of the excess food is finally retained and causes injury.

**Fat Intolerance.**—Excessive quantities of milk, because of the fat, will often result in gain in weight, at first, but later in a stationary weight, and afterwards in a loss. This is accompanied by gastrointestinal disturbances. More food will cause further diminution in weight. The fat can be added again only gradually and in small amounts.

**Sugar Intolerance.**—Excessive quantities of sugar, and some proprietary foods, because of the high sugar content, will cause the same increase in weight, at first. Afterward, when accompanied by gastrointestinal symptoms, by a loss.

A sugar intolerance has been established which can be overcome only by omitting the sugar temporarily; then by the gradual addition of sugar in small quantities.

## CALORIC VALUES OF SOME FOODS.

	Calories.
1 Ounce of cow's milk .....	20
1 Ounce of woman's milk .....	20
1 Ounce of skim milk .....	11
1 Ounce of buttermilk .....	11
1 Ounce of albumin milk .....	12
1 Ounce of cane sugar by weight .....	120
1 Ounce of milk sugar by weight .....	120
1 Ounce of maltose-dextrin by weight .....	120
1 Ounce of cereal water .....	3
1 Ounce of sweetened condensed milk .....	100
1 Ounce of beef juice .....	6
1 Ounce of orange juice .....	15

## CHAPTER IX.

### FEEDING FORMULAS.

The following formulas will furnish a safe standard by which well children may be fed during the first year of life.

They contain amounts and percentages, in suitable proportions for growth and development. Slight variations when carefully made will do no harm.

#### Formulas for Feeding Well Children to the End of the First Year.

**The Standard Tablespoon.**—Two level tablespoons of water, or any substance, should equal one ounce by measure in a graduate. For convenience measure with a tablespoon whenever possible.

**The Standard Teaspoon.**—Three level teaspoons should equal one tablespoon.

**Difference in Weight of Sugars.**—That is, a lighter sugar requires a larger measure to accomplish the same result. For instance: Two level tablespoonfuls of cane sugar equals one ounce by weight. Three level tablespoonfuls of milk sugar equals one ounce by weight. Four level tablespoonfuls of dextri-maltose equals one ounce by weight.

#### Variety of Sugars and their Values:

**Cane Sugar (Granulated).**—This may agree with the infant as well as any other.

**Milk Sugar.**—The same is true of milk sugar, but it is no better than cane sugar.

**Maltose Dextrin.**—This is most easily digested.

**Laxative Properties of Sugar.**—All sugars generally are laxative. The addition of an alkali to a maltose dextrin compound has a laxative effect. (A certain preparation of dextri-maltose number I and II are constipating. Dextri-maltose number III, with potassium carbonate, an alkali, is laxative.)

**The Sugar in the Formulas.**—Only one variety is to be added. The number of teaspoons of whichever one is to be used is expressed in each formula. Dextri-maltose number I is the preparation of choice.

### First Twenty-four Hours.

Average weight .....	7½ pounds
Amount of milk .....	(each feeding) 1½ ounces
Amount of water .....	(each feeding) 1½ ounces
Number of feedings .....	Six
Feeding intervals .....	Four hours

The infant will not take all.

### First Week.

Average weight .....	7 pounds
Amount of milk .....	9 ounces
Amount of water .....	9 ounces

Number of feedings ..... Six:

A. M., 2—6—10; P. M., 2—6—10

Feeding intervals .....	Four hours
Amount at each feeding .....	3 ounces

**Second Week.**

Average weight .....	7½ pounds
Amount of milk .....	9 ounces
Amount of water .....	9 ounces
Sugar {	If using cane sugar.....1 to 2 level teaspoonfuls
	If using milk sugar.....2 to 3 level teaspoonfuls
	If using Dextri-Maltose....2 to 4 level teaspoonfuls
	If using corn syrup .....1 to 2 level teaspoonfuls
Number of feedings .....	Six:
	A. M., 2—6—10; P. M., 2—6—10
Feeding intervals .....	Four hours
Amount at each feeding .....	3 ounces

**End of Third Week.**

Average weight .....	8¼ pounds
Amount of milk .....	9 ounces
Amount of water .....	9 ounces
Sugar {	If using cane sugar.....2 to 4 level teaspoonfuls
	If using milk sugar.....3 to 6 level teaspoonfuls
	If using Dextri-Maltose....4 to 8 level teaspoonfuls
	If using corn syrup .....2 to 4 level teaspoonfuls
Number of feedings .....	Six:
	A. M., 2—6—10; P. M., 2—6—10
Feeding intervals .....	Four hours
Amount at each feeding .....	3 ounces

**End of First Month.**

Average weight .....	9 pounds
Amount of milk .....	9 ounces
Amount of water .....	9 ounces
Sugar {	If using cane sugar.....4 level teaspoonfuls
	If using milk sugar.....6 level teaspoonfuls
	If using Dextri-Maltose.....8 level teaspoonfuls
	If using corn syrup ..... 4 level teaspoonfuls
Number of feedings .....	Six:
	A. M., 2—6—10; P. M., 2—6—10
Feeding intervals .....	Four hours
Amount at each feeding .....	3 ounces

\* If corn syrup is selected, dilute with an equal amount of water.

**Middle of the Sixth Week.**

Average weight .....	9 $\frac{1}{4}$ pounds
Amount of milk .....	10 $\frac{1}{2}$ ounces
Amount of water .....	10 $\frac{1}{2}$ ounces
Sugar {	If using cane sugar..... 5 level teaspoonfuls
	If using milk sugar..... 7 level teaspoonfuls
	If using Dextri-Maltose..... 10 level teaspoonfuls
	If using corn syrup ..... 5 level teaspoonfuls
Feeding intervals .....	Four hours
Amount at each feeding .....	3 ounces
Number of feedings .....	Six:

A. M., 2—6—10; P. M., 2—6—10

Stop the 2 A. M. feeding at the end of the sixth week.

This makes five feedings daily of about 4 ounces each.

**End of the Second Month.**

Average weight .....	10 $\frac{3}{4}$ pounds
Amount of milk .....	10 $\frac{1}{2}$ ounces
Amount of water .....	10 $\frac{1}{2}$ ounces
Sugar {	If using cane sugar..... 6 level teaspoonfuls
	If using milk sugar..... 9 level teaspoonfuls
	If using Dextri-Maltose..... 12 level teaspoonfuls
	If using corn syrup ..... 6 level teaspoonfuls
Number of feedings .....	Five:

A. M., 6—10; P. M., 2—6—10

Feeding intervals .....	Four hours
Amount at each feeding .....	4 ounces

**End of the Third Month.**

Average weight .....	12 $\frac{1}{2}$ pounds
Amount of milk .....	17 ounces
Amount of water .....	8 ounces
Sugar {	If using cane sugar..... 7 level teaspoonfuls
	If using milk sugar..... 10 level teaspoonfuls
	If using Dextri-Maltose..... 14 level teaspoonfuls
	If using corn syrup ..... 7 level teaspoonfuls
Number of feedings .....	Five:

A. M., 6—10; P. M., 2—6—10

Feeding intervals .....	Four hours
Amount at each feeding .....	5 ounces



**End of the Fourth Month.**

Average weight .....	14¼ pounds
Amount of milk .....	22 ounces
Amount of water .....	9 ounces
Sugar {	If using cane sugar..... 9 level teaspoonfuls
	If using milk sugar.....13 level teaspoonfuls
	If using Dextri-Maltose.....18 level teaspoonfuls
	If using corn syrup ..... 9 level teaspoonfuls
Number of feedings .....	Five:
	A. M., 6—10; P. M., 2—6—10
Feeding intervals .....	Four hours
Amount at each feeding .....	6 ounces

**End of the Fifth Month.**

Average weight .....	15¼ pounds
Amount of milk .....	23 ounces
Amount of water .....	10 ounces
Sugar {	If using cane sugar..... 9 level teaspoonfuls
	If using milk sugar.....13 level teaspoonfuls
	If using Dextri-Maltose.....18 level teaspoonfuls
	If using corn syrup ..... 9 level teaspoonfuls
Number of feedings .....	Five:
	A. M., 6—10; P. M., 2—6—10
Feeding intervals .....	Four hours
Amount at each feeding .....	7 ounces

**End of the Sixth Month.**

Average weight .....	18¼ pounds
Amount of milk .....	25 ounces
Amount of water .....	10 ounces
Sugar {	If using cane sugar..... 9 level teaspoonfuls
	If using milk sugar.....13 level teaspoonfuls
	If using Dextri-Maltose.....18 level teaspoonfuls
	If using corn syrup ..... 9 level teaspoonfuls
Number of feedings .....	Five:
	A. M., 6—10; P. M., 2—6—10
Feeding intervals .....	Four hours
Amount at each feeding .....	7 ounces

## End of the Seventh Month.

Average weight .....	17 $\frac{1}{4}$ pounds
Amount of milk .....	27 ounces
Amount of water .....	10 ounces
Sugar {	If taking cane sugar..... 9 level teaspoonfuls If taking milk sugar.....13 level teaspoonfuls If taking Dextri-Maltose.....18 level teaspoonfuls If using corn syrup ..... 9 level teaspoonfuls
Number of feedings .....	Five:
	A. M., 6—10; P. M., 2—6—10
Feeding intervals .....	Four hours
Amount at each feeding .....	8 ounces

## End of the Eighth Month.

Average weight .....	17 $\frac{3}{4}$ pounds
Amount of milk .....	29 ounces
Amount of water .....	10 ounces
Sugar {	If taking cane sugar..... 7 level teaspoonfuls If taking milk sugar.....10 level teaspoonfuls If taking Dextri-Maltose.....14 level teaspoonfuls If using corn syrup ..... 7 level teaspoonfuls
Number of feedings .....	Five:
	A. M., 6—10; P. M., 2—6—10
Feeding intervals .....	Four hours
Amount at each feeding .....	8 ounces

## End of Ninth Month.

Average weight .....	18 pounds
Amount of milk .....	30 ounces
Amount of water .....	8 ounces
Sugar {	If using cane sugar..... 7 level teaspoonfuls If using milk sugar.....10 level teaspoonfuls If using Dextri-Maltose.....14 level teaspoonfuls If using corn syrup ..... 7 level teaspoonfuls
Number of feedings .....	Five:
	A. M., 6—10; P. M., 2—6—10
Feeding intervals .....	Four hours
Amount at each feeding .....	8 ounces

**End of the Tenth Month.**

Average weight ..... 18½ pounds  
 Amount of milk ..... 31 ounces  
 Amount of water ..... 7 ounces

Sugar { If using cane sugar..... 7 level teaspoonfuls  
           If using milk sugar..... 10 level teaspoonfuls  
           If using Dextri-Maltose..... 14 level teaspoonfuls  
           If using corn syrup ..... 7 level teaspoonfuls

Number of feedings ..... Five:

A. M., 6—10; P. M., 2—6—10

Feeding intervals ..... Four hours

Amount at each feeding ..... 8 ounces

Stop the 10 P. M. feeding at the end of the tenth month.

Four feedings daily. Reduce milk to 28 ounces and water to 1 to 3 ounces.

**End of the Eleventh Month.**

Average weight ..... 19½ pounds  
 Amount of milk ..... 28 ounces  
 Amount of water ..... 1 to 3 ounces

Sugar { If using cane sugar..... 7 level teaspoonfuls  
           If using milk sugar..... 10 level teaspoonfuls  
           If using Dextri-Maltose..... 14 level teaspoonfuls  
           If using corn syrup ..... 7 level teaspoonfuls

Number of feedings ..... Four:

A. M., 6—10; P. M., 2—6

Feeding intervals ..... Four hours

Amount at each feeding ..... 8 ounces.

**End of the Twelfth Month.**

Average weight ..... 21 pounds  
 Amount of milk ..... 28 ounces  
 Amount of water ..... 1 to 3 ounces

Sugar { If using cane sugar..... 9 level teaspoonfuls  
           If using milk sugar..... 13 level teaspoonfuls  
           If using Dextri-Maltose..... 18 level teaspoonfuls  
           If using corn syrup ..... 9 level teaspoonfuls

Number of feedings ..... Four:

A. M., 6—10; P. M., 2—6

Feeding intervals ..... Four hours

Amount at each feeding ..... 8 ounces

## CHAPTER X.

### Directions for Using Formulas for the First Year —Feeding Rules for Artificially Fed Infants.

#### DIRECTIONS WHEN UNDER TWO MONTHS OF AGE.

**Formula.**—Start with a formula for the infant's present age, but omit the sugar at first. Divide into the required number of feedings and give at proper intervals.

Wait three or four days. If the milk agrees, start adding the sugar, one level teaspoonful at a time, *to the whole daily amount*, every other day until the amount in the formula is reached.

#### WHEN OVER TWO MONTHS OF AGE. (When not Accustomed to Cow's Milk or Sugar.)

**Formula.**—If the infant weighs the average amount for its age, or within two pounds of it, select the formula given for a child four months younger.

Use the indicated amount of milk and water, but omit the sugar at first. Divide into the required number of feedings and give at proper intervals.

Wait three or four days. If the milk agrees, start adding sugar, one level teaspoonful at a time, to the total daily mixture, every other day until the amount in the given formula is reached.

Gradually increase the milk, sugar and water until the infant is taking the formula indicated for its present age. This will take about three weeks.

*Do not increase the milk and sugar on the same days.* It will never be necessary to start with a weaker formula than that given for the second month.

### INFANTS VERY MUCH UNDER WEIGHT.

**Formula.**—Start with a formula which is intended for an infant two pounds lighter than the one to be fed, regardless of age. Follow the same instructions for milk and water, and later, level teaspoonful additions of sugar, as previously directed, until the given formula is reached.

Then gradually increase the mixture until the infant is taking the formula which a child of normal weight should take at its age.

### CHILDREN VERY MUCH OVER WEIGHT.

Proceed the same as directed for children over two months of age. While the fat child actually takes more food than the thin child, it does not require as much for its weight, as the thin child, which needs more in proportion to its weight, for tissue building, and has as much body surface to heat.

If not satisfied with the amount, more milk may be given, that is, about one and one-half ounces of milk daily for each pound of the baby's weight, but the total should never exceed thirty-two ounces of milk—one quart.

The amount at one feeding must not exceed nine ounces. The amount of sugar added to the mixture must not be over one and one-half ounces by weight daily.

If the infant has been accustomed to cow's milk with additions of sugar in similar proportions to those indicated in the formula for its age, it is not necessary to start with so weak a mixture. The child may begin with the same amount of milk, sugar and water to which it is accustomed.

If a different variety of sugar is to be used the amount must at first be reduced about two-thirds and gradually increased to the quantity which is to be added.

### WHOLE MILK.

**When to Give.**—It will be seen by the formulas that the infant may be given whole milk when ten months old. Many do not need whole milk until the end of twelve months. It depends upon how well the baby takes the mixture and how large a quantity we wish to make up.

There is no reason for giving whole cow's milk earlier. Whole milk may be used sooner, but if given, should be boiled. There is no occasion for its early use and it is accompanied by unnecessary risk.

### WHEN TO STOP ADDITIONS OF SUGAR.

By the end of the twelfth month. It is needed until then to make up the fuel requirements. It is surprising how small is the fuel value of the additional food in the first year. Their principal value is for their salts and vitamins.

**How to Proceed.**—Commence diminishing the amount of sugar in the bottle mixture, gradually at the

beginning of the thirteenth month, so that in three weeks none is added.

**How to Decrease the Water.**—From the end of the eighth until the end of the tenth or twelfth month gradually decrease the water so that by that time just enough is used to dissolve the sugar which is to be added.

**Water Between Feedings.**—The child will obtain enough water in its feedings. There is no objection to the giving of an ounce or two occasionally, half way between feedings, or, if hungry in the night, an amount equivalent to a regular feeding.

**Number of Feedings Daily.**—Except the first twenty-four hours, six feedings daily until the end of the sixth week. From the sixth week until the end of the tenth month, five feedings. During the eleventh and twelfth months, four feedings.

(The number of feedings are increased if the intervals are less.)

**Feeding Intervals.**—Including the first day of life, four-hour intervals. These are only to be discarded if the infant demonstrates its inability beyond doubt, to go four hours. (See feeding intervals under "Breast Feeding.")

**Amount at Each Feeding.**—Give one or two ounces more than the infant is months old, the maximum amount being eight ounces at a feeding. Under unusual circumstances nine ounces are sometimes given, but only on the advice of a physician.

Commence with three ounces on the first day of life. The infant will not take all of this during the first week. (First month three ounces, second

month four ounces, etc.) The amount will continue to vary between one and two ounces more than the child is months old during the first seven or eight months of life.

**Proportion of Milk and Water.**—Until the end of the second month, half milk and water. From the beginning of the third until the end of the eighth month approximately one-third water.

### NIGHT FEEDINGS.

**None.**—Unless ordered by the physician, after the sixth week. The day is from six A. M. to ten P. M. To appease the infant the equivalent of a regular feeding in water or cereal water, may be given, if necessary

### FEEDING RULES FOR ARTIFICIALLY FED INFANTS.

**Temperature of the Milk.**—It should be body temperature. Warm by placing the nursing bottle containing the milk, in hot water. Let a drop fall on the surface of the wrist. It should have no feeling or be faintly warm.

**Position of the Infant While Feeding.**—The same as for a breast nursing. Place the infant on the left arm which supports the back. Hold the bottle slightly inclined, with the right hand, so that the milk will run down. Always keep the nipple and the neck of the bottle full. For the first three months the infant may be held. Afterward, it is well to feed the infant lying in bed on its side—*but the bottle should be held.*



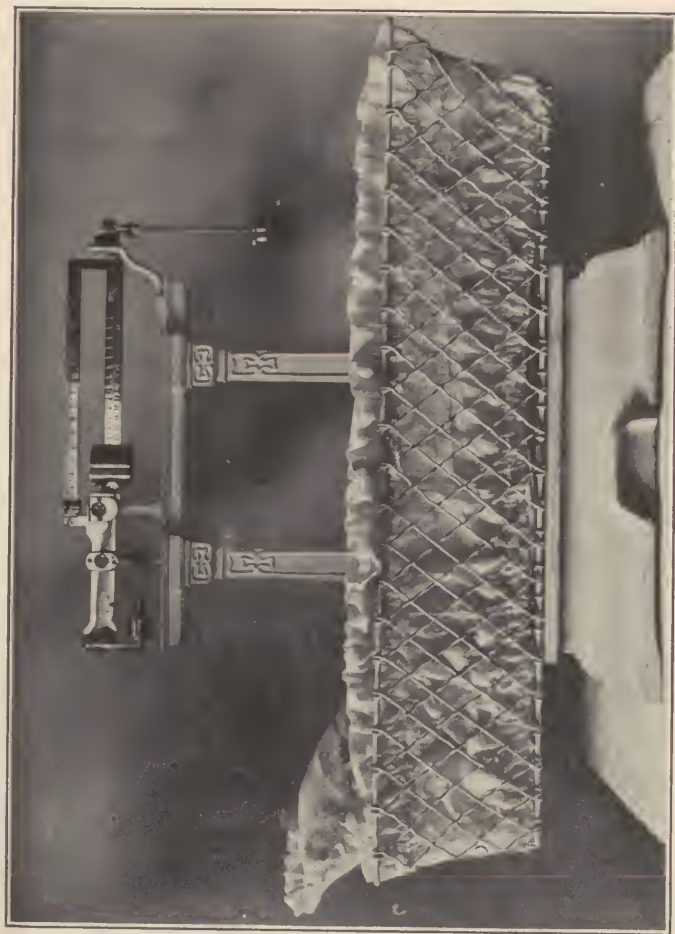


PLATE III.—Author's balance, platform scales, weighing to quarter ounces. The basket rests upon the platform. The infant may be placed at any point within the basket without influencing the weighing.



**Precautions.**—Take the bottle away three or four times during a feeding, so that the milk will not be swallowed too rapidly. Raise the infant's head or pat over shoulder so that any gas may be expelled.

**Length of Feeding Period.**—Fifteen to twenty minutes. If the infant does not take all, wait until the next time.

**Awaken Child.**—The child must always be awakened when the feeding time is due.

**Absolute Regularity.**—This is important for the child's digestion and general well being.

**Rocking or Walking.**—This must not be done except in illness. Place the child in its bed, immediately after feeding. When the infant learns that this is the routine, nothing else will be expected. Even during the first week of life, an infant knows how to take advantage and the way to do it, that is, by crying.

**Weighing.**—*Weigh once a week, on the same day, before a feeding, and without clothes.* Keep record of weight. If a weight chart is used, mark the infant's weight with a period at the appropriate intersection of the two lines indicating weeks and pounds, and connect with lines.

It is best for the infant's progress if the physician be kept informed. This should be done each week after weighing. In this way "upsets" may be avoided.

**Kind of Scales.**—A balance scale with a platform is the best. A balance scale with a "scoop" may be no better than a spring scale, that is, those ordinarily in use with a basket attachment.

A kitchen balance scale with a platform upon which a basket can be placed, is excellent.

**Precautions.**—Place the infant so that the weight is over the center. "Tipping over," whether a balance or a spring scale is used, is inaccurate. When using a small platform, balance scales, this cannot happen. (A basket or box may be placed on the platform.)

The spring scales, while possibly not accurate in comparison with a perfect scale, will record the gain or loss, each week, which is the information that we want.

**Weight of Artificially Fed Infants.**—An average weekly gain during the first six months of five or six ounces is satisfactory. From then until the end of the first year, about four or five ounces.

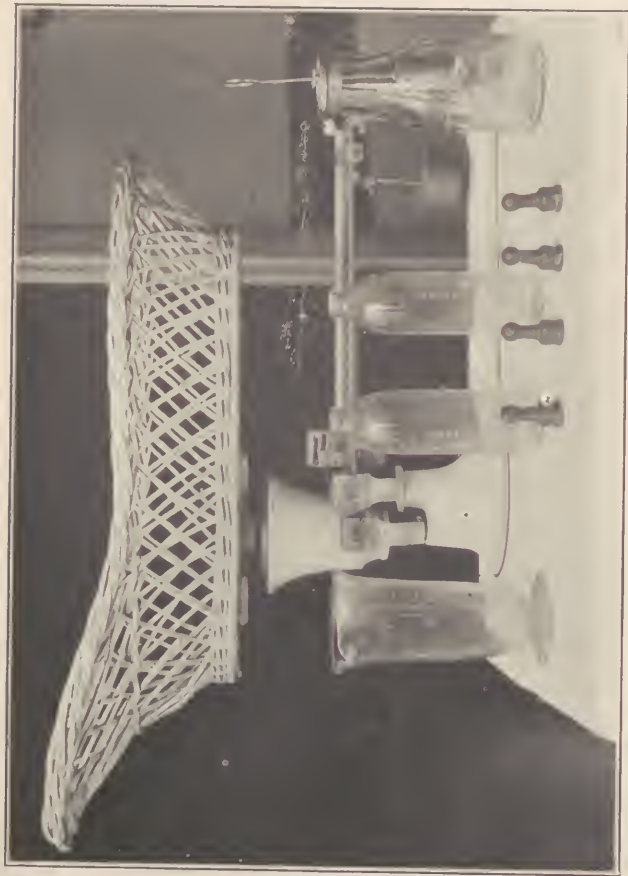


PLATE IV.—Balance scales, without platform, which may be as inaccurate as a spring scale, unless the infant is placed over the center. A sixteen ounce graduate to left of picture; in center, the correct variety of nursing bottles, with short necks: to right, a Chapin cream dipper within ordinary pint bottle; in front, correct variety of nipples, conical shaped.



## CHAPTER XI.

Articles Required for the Preparation of the Mixture  
— Domestic Measures — Bottles—Nipples—Directions for Preparing Food.

### ARTICLES REQUIRED FOR THE PREPARATION OF THE MIXTURE.

A pitcher holding two quarts.  
An enamel funnel.  
Six nursing bottles.  
A tablespoon.  
A teaspoon.  
A table knife.  
A measuring glass or graduate holding sixteen ounces and measured in ounces.  
A low glass or tumbler for holding nipples.  
Eight nipples.  
A glass for holding borax.  
A double boiler.  
An aluminum saucepan.  
A quart jar in which to keep boiled water.  
Wire rack for holding bottles.  
A tray to set them on.  
A Chapin cream dipper.  
(A brush for cleaning bottles, because uncleanly, is purposely omitted.)

### DIFFERENCE BETWEEN MEASURE AND WEIGHT.

Two level tablespoonfuls of a substance equals one ounce by measure. It may require three or more tablespoonfuls to equal one ounce by weight.

**TABLE OF DOMESTIC MEASURES.**

Three level teaspoons	= one level tablespoon.
Two level tablespoons	= one ounce (by measure)
One breakfast (coffee) cup	= eight ounces.
Average tumbler or glass	= nine ounces.
Average tumbler, as filled for drinking	= six ounces.
Two cups	= one pint.
Two pints	= one quart.
Sixteen ounces	= one pint.
Sixteen ounces	= one pound.

**NURSING BOTTLES.**

**The Best to Use.**—A short-necked bottle which slopes gradually into the body, has no projections inside, and holds eight ounces.

**Their Care.**—Boil all new ones. After a feeding, wash with running water, then use soap and water to clean. Rinse again with hot water. Pour out, and put into the bottle one heaping teaspoonful of powdered borax. Fill the bottle and let stand until the next feeding. Pour out and rinse with clean water. Turn upside down and leave until ready to fill with milk.

**NIPPLES.**

**Best to Use.**—Conical shaped, which fit directly over the neck of the bottle. A smaller nipple should be selected for a small infant.

**Precautions.**—If possible, buy nipples which have no holes ("blind"), and make the holes to suit, with a needle which has been passed through a flame.



**Size of Hole.**—Just large enough to permit the milk to drop, not run, when the bottle is inverted.

**Their Care.**—Boil when new. After using, turn wrong side out and wash with soap and water, and rinse. Another method is to fill the nipples with borax, hold under running water and work nipple between fingers; rinse again.

Place the nipples, in either case, in a solution of borax (heaping teaspoonful to the glass), until ready for use.

Filling the nipple with borax and holding under running water, while working the nipple between the fingers, does away with the necessity of either boiling the nipples, or turning them wrong side out.

**Cotton Used.**—A clean piece of absorbent.

## DIRECTIONS FOR PREPARING FOOD.

**Make All up at One Time.**—Divide the twenty-four hour mixture equally between the number of bottles which the infant is to take.

**Regularity.**—Prepare at the same time each day.

**Milk.**—Keep the bottles closed until ready to use. Measure in a graduate the whole amount ordered and pour into a pitcher.

**Water to Dissolve Sugar.**—Measure out a sufficient amount for this purpose.

**Sugar.**—Dissolve in the water the sugar which is to be added.

**Balance of Water.**—Add enough water, previously boiled, to bring the mixture up to the total amount ordered, that is, to replace evaporation.

**Mixing.**—Pour the water into the pitcher with the milk, and then add to this the sugar solution *ice cold*; stir the whole. It is ready to divide between the required number of bottles.

**Boiling the Milk Slowly.**—If this has been ordered, pour the required amount of milk cold into a double boiler. Put cold water into the outer vessel and boil the water for six to eight minutes. After this has been done, set the inner vessel containing the milk, covered, in ice-cold water. Add the sugar solution (ice cold) and additional water to the milk *only after the milk has also become cold*.

**Boiling Milk Rapidly.**—If done carefully, this is the best method. The required amount of water being brought to the boiling point, pour into it the amount of milk desired. After both have boiled together for three minutes, remove from the stove. Stir constantly while boiling and remove “scum” from the top. More water may have to be added to replace evaporation. (Milk, without water, should also be boiled for three minutes.) Cool rapidly and add the sugar solution, ice cold.

**Measuring.**—Use a teaspoon or a tablespoon, and always measure “level.” Never add a “heaping” teaspoonful of anything. Leveling means to fill the spoon and level off with the edge of the knife.

**Stoppering Bottles.**—Close the opening with absorbent cotton and place all next to the ice.

**When Ready to Feed.**—Take one bottle, set in hot water and warm to “hand” or “body” temperature. Slip the nipple over the neck of the bottle and test with a few drops on the inner surface of the wrist. Observe feeding rules.

**Boiling Drinking Water.**—All drinking water for infants under one year, should be boiled for five minutes.

## CHAPTER XII.

### Methods of Heating and Sterilizing Milk— Substitutes for Cow's Milk.

#### PURPOSE OF HEATING OR STERILIZING MILK.

Usually to soften the curd. So-called sterilization kills the harmful germs which are present, but if the milk is not made ice cold quickly and kept so afterwards, other poisons will form.

#### Methods.

##### BOILING.

**What it Does.**—It softens the curd and renders the milk more digestible, and kills the harmful organisms present.

#### Objections Urged.

**Constipates.**—It is said to constipate, but this is not a disadvantage.

**A "Dead Food."**—It is said to be a "dead food," that is the substances (vitamines), in the food which are necessary for growth, are destroyed and scurvy may develop.

This is not always true. A tendency, if it exists, may be counteracted by giving orange juice, tomato juice, or the juice of vegetables, especially beets, potatoes, carrots, turnips and parsnips, any one of which will prevent it, if cooked for less than one-half hour

**Changes Taste—Chemical Changes.**—Infants do not seem to mind this, and no harm is done by any chemical changes in its composition.

**Suggestions.**—A child whose digestion is delicate should use only boiled milk.

Boiled milk may be used indefinitely if accompanied by the use of orange juice, vegetables, cooked less than a half hour, or vegetable juice.

Because of the prevalence of tuberculous disease among cattle, it is best to use only boiled milk during the first year of the infant's life. In those infants in whom the family history may indicate a susceptibility to tuberculous disease, the milk should be boiled until the end of the second year.

After having one "upset" in the summer, boiled milk should be resorted to, and continued until the cold weather.

## PASTEURIZATION.

**What it Does.**—The same as boiling.

**Advantage Urged.**

**Not a "Dead Food."**—It is just as much so as boiled milk.

**Taste and Chemical Changes.**—Neither are altered by it.

**Objections to its Use.**—It is more difficult than boiling.

**Methods in the Home.**—Place the bottles, stoppered with non-absorbent cotton, in a pail or pan of cold water, the water being at a level with the milk in the bottles.

Heat the pan containing the bottles on the stove until the thermometer, suspended in the water, reaches 145° F. Remove from the stove and cover with a blanket for half an hour. Then cool the bottles quickly in ice water and place next to the ice.

#### COMPARISON BETWEEN BOILED, PASTEURIZED AND RAW CERTIFIED MILK.

**Taste.**—That this is not changed, is the only thing in favor of pasteurizing.

**Substances Necessary for Growth (Vitamines).**—In both they are appreciably destroyed. Whether the milk is boiled or pasteurized, certified milk should be used, or the best obtainable.

#### USE OF RAW CERTIFIED MILK. (That is, not Boiled or Pasteurized.)

**When to Use.**—Preferably after the first year, when the infant is not delicate, and is doing nicely on it.

**When not to Use.**—When the infant has had a gastrointestinal “upset,” or during very hot spells.

Recent investigations have proven that raw milk has not the superiority over boiled or pasteurized milk which we formerly thought it to possess.

This is due to the fact that the dry feed given cows in winter, as opposed to feeding in the open pasture in summer, destroys much of the vitamins in the cow's milk. This then, must be true of ordinary or market milk in the winter and of certified milk during all seasons, unless plenty of green food is supplied daily to the cows. The

dry feed given to cows producing certified milk is said to contain a sufficient amount of green food stuff to meet this requirement. The vitamine content of cow's milk depends upon the quality of food with which they have been supplied.

If this is the case, it is safer to give orange juice, or its substitutes, to any child who is taking cow's milk, whether it is raw, boiled, or pasteurized.

When cows are pasture fed, the infants are more liable to "upsets" than when taking certified milk, which is produced by cows which eat only dried foodstuff in the stable.

### PEROXIDE STERILIZATION OF MILK.

**Uses.**—Only under circumstances when milk must be used regardless of quality and where there are no facilities for keeping.

**Methods.**—About one-third of an ounce of Neilson's hydrogen peroxide is added to one quart of raw milk at a temperature of 128° F. It is said to keep anywhere without icing for a week or ten days.

### CARE OF MILK OR FOOD DURING TRAVELING.

**Iced.**—Milk should be carried in a portable ice box and heated to the required temperature just before using.

**Traveling.**—If more than twenty-four hours are to be consumed on the trip, and fresh certified milk can not be procured at way points, it would be well to use powdered milk.

## SUBSTITUTES FOR COW'S MILK.

### The Use of Proprietary and Patent Foods.

**Value—As Temporary Foods.**—They are all practically sterile. They are easy to digest, because there is not enough fat, proteid or sugar, with one or two exceptions, to tax the digestion, if used for a limited time. This explains the good results which make them popular.

A mother, whose child has not “done well” on some improper cow’s milk mixture, of her own accord will place her child on some patent food preparation and become enthusiastic over the improvement. A pleasing gain in weight may continue for a long time and, in some cases, no apparent bad results are noticed.

The danger is, that, if continued over a long period, some serious nutritional disturbance may occur, because of the (usually) high percentage of sugar contained in them at the expense of the fats and proteids.

**Objections and Limitations.**—As far as we know, most of the foods have no vitamins. They have been destroyed by the heat to which they were subjected in the process of manufacture.

A certain powdered milk has been found experimentally to have retained its vitamin substances. This may also be true of other proprietary and patent foods.

One popular food, which is to be used with water only, contains a negligible quantity of fat, in the dilutions suggested. Some contain approximately correct percentages of the elements.



A certain food contains almost negligible quantities of fat, proteid and sugar, when diluted according to directions. Milk is to be used with it. This is fortunate as almost all the nourishment the child obtains is in the milk.

**Their Uses.**—They may be tried with benefit at the proper time, and are valuable in certain conditions. A powdered milk has given very excellent results when used by the author, in children much under weight, who have constantly vomited their food. As soon as practical, fresh cow's milk mixtures should be substituted. Further uses are during the hot weather, traveling, etc., as temporary foods.

In other words, they may be valuable at certain times in the feeding of infants who are under the supervision of a physician, who has made the selection and knows the composition and indication for each.

## CHAPTER XIII.

Evidences of Well Being in a Child Who is Bottle Fed—When the Bottle Fed Infant is not Doing Well.

### EVIDENCES OF WELL BEING IN A CHILD WHO IS BOTTLE FED.

**Indications.**—The same as in breast feeding. The child is happy and contented, sleeps through the night, and between the greater part of its feeding intervals, is not restless, and is satisfied with, and takes, eagerly a fifteen to twenty minute feeding.

The infant has from one to three normal stools daily, firm, and putty-like in consistency.

**Stools.**—The color is yellowish, when whole milk is used, shading to light green when a strong milk mixture is used, and brownish if a maltose dextrin preparation of sugar, or when beef juice or vegetables are used.

**When Using Skimmed Milk.**—Smooth, formed, well digested, dark brown, and often a foul cheesy odor.

**When Using Buttermilk.**—Dark brown, smooth, salve-like, with a peculiar acid odor to the stool.

**Curds and Mucus.**—This is not abnormal, if the child is doing well.

**The Weight.**—There must be an average gain of four or five ounces a week. The child's body should feel firm and the skin appear a good color.

WHEN THE BOTTLE FED INFANT IS  
NOT DOING WELL.

Colic.

Distention of the abdomen with gas, causing the infant to squirm and cry for long intervals with pain.

Causes.

**Nursing Period and Intervals.**—Too rapid feeding, overfeeding in quantity, "too rich a mixture," that is, too much fat and sugar, and the passage of air into the bottle. The neck of the bottle should remain full while nursing. Lengthen the intervals between feedings, and the nursing periods.

**Cathartics.**—Their constant use is a source of irritation to the infant.

**Suggestions.**—Try to remedy any of these causes if present.

Abnormal Stools.

(That is, When the Child is Not Doing Well.)

**Proteid Curds.**—Large, tough and the size of a navy bean. Usually insignificant.

**Fat Curds.**—These are small, pinhead to a pea in size, color white, yellow, or greenish, easily broken up, and are suggestive of trouble, only if the infant is not doing well.

**The Fat Stools.**—This variety is due to an acquired intolerance for fat, or an inability of the organism to assimilate fat. This results from the feeding for a long time of too much milk, with more fat than the child can tolerate. It is a symptom of fat indigestion.

**Color of Fat Soap Stools.**—Grayish usually, but may be greenish. They are hard and dry and may be shaken from the diaper. They occasionally contain mucus.

**Mucus.**—If this is enough to be seen, it is abnormal, but is only significant if the infant is not doing well.

**Starvation Stool.**—Small, brownish or yellowish green, loose or constipated with mucus.

**Color and Consistency.**—Dark green. When black, may rarely be due to blood. Thin and watery stools are abnormal.

**Blood.**—If on the outside of a constipated stool, it suggests a crack around the rectum. If mixed with the stool and mucus, it shows an inflammation of the large intestine or possible obstruction of the bowel (intussusception).

### Vomiting.

**Causes.**—Usually too much fat in the mixture. Sometimes it is an excessive amount of sugar (proprietary foods).

**Handling.**—The infant should be laid quietly upon its bed after a feeding.

**Other Causes.**—Too much in quantity, nursing periods or intervals too short.

**Habit Vomiting or Rumination.**—(See page 23.)

**Organic.**—It may be congenital stenosis of the pylorus (partial or complete obstruction at the outlet of the stomach into the small intestine).

**Contagious Diseases.**—The onset of any eruptive disease, also pneumonia, etc., often begins with vomiting.

Ascertain the causes and try to remedy them.

If severe, stop the milk mixture until vomiting ceases. After six hours it is well to give one or two ounces of water with one-third of a teaspoonful of Squibb's sodium bicarbonate to the glass of warm water every hour, whether it is vomited or not.

When the vomiting ceases, give small quantities of skimmed milk in the proportion of milk two-thirds and water one-third. Gradually return to the formula.

#### Diarrhea.

##### Causes.

**Too Much Sugar or too Much Fat.**—The variety or quantity of sugar may be at fault or the milk too rich.

**Feeding Intervals and Periods.**—Observe the rules for feeding.

**Milk.**—Some babies do better when the milk is boiled.

**Infections.**—The entrance of organisms into the intestines which result in a disturbance, is rather rare.

**Warm Weather.**—A lowered tolerance for food in the stomach and intestines.

**Suggestions.**—Try boiling the milk. If not successful stop the sugar, or skim the milk. Discontinue the fruit. Give an enema daily (baking soda, two teaspoonfuls to the quart) until the infant is better. No cathartic is to be used unless ordered by the physician. Give as much water as the child wishes

to drink. If a cathartic is to be used, milk of magnesia is the best.

**Eczema, Urticaria (Hives).**—Certain protein substances contained in one or several of the articles of the food eaten by the infant may be the cause. (See Rules for Nursing Mother. Food Sensitization).

### Constipation.

**Causes.**—Boiled milk, the abuse of cathartics, too much fat, that is the overfeeding with milk which has more fat than the infant can tolerate, over a long period.

**Other Causes.**—Proprietary foods or other sugars in excess, not sufficient water, a lack of fruit, or fruit juice, or of solid food.

**Regularity.**—The infant should be trained to have a stool at definite times. An abnormally small rectum is sometimes present.

### Failure to Gain.

**Causes.**

**Not Enough Food.**—That is, of milk or sugar. The addition or increase of fruits, or vegetables for their vitamins is frequently indicated.

**Too Much Food.**—It must not be forgotten that this, especially milk (fat) is often the cause.

**Disturbances in Hot Weather.**—Reduce the food. Dilute at least half during the hot spells and reduce the amount of solid foods.

**Increasing the Food.**—Gradually, and only increase one thing at a time; never the milk and sugar together. If this is remembered the cause of any trouble can be located.

**Overfeeding.**—This is the cause of most disturbances.

It is not that the amounts are beyond the stomach capacity, but that the elements (fat, sugar, etc.), are in excess. This may cause vomiting, diarrhea, constipation, stationary weight, etc.

**Underfeeding—(Evidences of).**—Stationary weight, sometimes a starvation stool; frequently no gastrointestinal symptoms, but evidence of hunger, with restlessness; too weak a milk mixture.

## CHAPTER XIV.

### Other Foods in the First Year—Their Uses— Vitamines—The Cooking of Vegetables.

#### OTHER FOODS IN THE FIRST YEAR.

**Time to Start—Reasons for.**—The percentage of vitamins in woman's milk depends upon the vitamin content of the food eaten by her. This is also true of cow's milk. It is important to commence giving other foods as early as the infant's digestion will permit. It is the custom of the author to begin with solids when the infant is five months old. At this period the child is well able to take care of this form of food. While milk is rich in calcium, its percentage of iron is negligible. Foods which contain iron and which will supply additional amounts of calcium to meet the ever increasing demands of the organism are needed.

#### INTERNAL EFFECTS OF FOOD.

**On the Teeth and Bones.**—At birth, the crowns of the deciduous, that is, the temporary or milk teeth, are well calcified and these continue to grow, and the roots to form.

**Foods Needed.**—Those which contain large amounts of calcium, and other salts, for the growth of the teeth and bones, and for preserving the proper chemical balance of the organism; those which contain iron and vitamins, substances necessary for



growth. Fats, carbohydrates (sugar), and proteids are present in essential amounts in a well balanced diet.

**Milk, Cereals and Vegetables.**—These (also egg yolk), furnish calcium in greatest quantities. Especially rich in this mineral are oatmeal and carrots.

**Iron-Containing Foods.**—Beef or beef juice, eggs (especially egg yolk), oatmeal, whole wheat bread, spinach, potatoes, carrots and other vegetables. (See Diet List for Anemia.)

### VITAMINES, OR SUBSTANCES ESSENTIAL FOR GROWTH, IN FOODS.

**When Present.**—The “Fat Soluble A,” is present principally in milk, butter, egg yolk fat, and vegetables, especially the leaf vegetables, classed as salads, such as spinach, Brussels sprouts, kale, cabbage, lettuce and in the root vegetables, such as white potato, sweet potato, carrots, beets, parsnips, turnips.

The “Water Soluble B,” is present largely in yeast, also in eggs, milk, cheese, nuts, beans, peas, oranges, tomatoes, lemons, apples and grapes, and potatoes, carrots and turnips. Liver and sweetbreads are moderately rich in it.

The “Water Soluble C,” is present in cabbage, turnips, lettuce, water cress, potatoes, lemons, oranges, raspberries and tomatoes.

**Tomato Juice.**—The tomato has achieved much notoriety since it was discovered to be the first vegetable tested, in which subjection to high temperature in cooking or canning did not destroy its

antiscorbutic properties, that is, as a preventive against scurvy.

**Uses.**—For this reason the juice of freshly cooked or canned tomatoes has been used instead of orange juice, *when the latter is not available*.

**Amounts.**—The same amount is given, that is, two tablespoonfuls at least daily. There is no occasion for its use, except when oranges can not be procured or afforded.

**Fresh Fruits.**—These are important only for the vitamins and salts which they contain and are not given for their laxative properties. The orange is especially rich in calcium.

**Orange Juice.**—The orange is selected because of its availability, pleasant taste, digestibility and its vitamin substances—that is, for its value as a preventive against scurvy. At least two tablespoonfuls should be given daily. It is not given because of any laxative property. The addition of a pinch of baking soda (sodium bicarbonate), is often helpful, if the infant is inclined to vomit.

**Time to Begin and Amounts.**—In the second month, give one teaspoonful strained, with or without an equal amount of water. Increase to two tablespoonfuls at least, gradually.

**Lemon Juice.**—This is valuable but not quite so good as orange juice.

**Prune Juice.**—It is not known whether it has value except for its salts and laxative properties.

**Cereals.**—Vitamins in very small amounts are present, but cereals are important for the growth of teeth and bone.

**Meats.**—Contain iron, but few vitamine substances, contribute almost nothing to the formation of teeth and bones, but are necessary for the growth of the organism.

While a certain amount is required for development, they are the least important of the foods.

**Yolk of Egg.**—The yolk of egg is very rich in vitamines.

**Bread.**—White bread contains few vitamine substances. It is important because of its high starch or sugar content, and moderate amount of proteids.

Brown and graham breads, while less digestible, are comparatively rich in vitamines.

## EFFECTS OF FOOD IN THE MOUTH.

**Soft Foods.**—The custom of giving a preponderance of soft foods is prevalent, and very injurious.

**Objections.**—Mastication being unnecessary, no aid is given to developing the jaws.

Saliva, which is the best mouth wash (slightly alkaline, or neutral), is not stimulated. It assists in the first process of starch digestion. When teeth are present, soft food sticks to the gums and teeth. Chemical changes may then affect the enamel and cause cavities.

The author thinks that sugar, if permitted to lodge on the teeth is harmful, because it starts lactic acid fermentation, which produces decay of the teeth, beginning at the points of lodgement. Carbohydrate food, which includes sugar in bread, cakes and crackers, as well as candy, especially chocolate, is the principal factor in producing decay

(caries) of the teeth; fats and proteids are not involved in this process.

**Foods with Substance Develop the Jaws.**—These aid in developing the jaws, and help to prevent irregular teeth.

**A Tooth Brush.**—Crusty breads (French or Vienna), crisp toast, unsweetened zweibach, vegetables and meats do the same and also act as tooth brushes, and assist in preventing cavities. A drink of water at the end of a meal aids in washing the teeth.

The importance of this lies in the fact that most children neglect the use of the tooth brush. They should be taught to take pride in its use.

**Fruits.**—Because of their acid content, stimulate the saliva, the normal mouth wash, and should be given at the end of a meal.

**Varieties.**—Orange juice and apples (raw or scraped, for younger children), grapefruit (acid fruits), or any fruits which the child can digest, are good.

**Yeast.**—It contains Vitamine B. and no other. It should not be used for its vitamine content in the feeding of infants, as it causes diarrhea

**Note.**—Milk, ice cream (for older children), butter and cheese are rich in substances essential for growth.

### The Foods Which Lose Least Vitamines in Cooking.

List of vegetables which, if cooked for one-half hour, lose very little; if cooked for one hour, lose much.

#### Vegetables:

Potatoes,	Tomatoes,	Carrots,
Turnips,	Cauliflower,	Cabbage.

If preparing a vegetable juice to give for its vitamin properties, select from the above list.

### Fruits:

Blackberries (canned),  
Raspberries (canned),  
Orange peel.

**Cooking Vegetables.**—Cut vegetables into small pieces and place in boiling water.

### Length of Time Required.

	Minutes.
Peas .....	25
Spinach .....	25
Cauliflower (medium small) .....	30
Cabbage .....	20 to 30
Turnips .....	30
Corn .....	10
Parsnips .....	30
Potato (small to medium) baked .....	30
Potato boiled .....	20 to 30
Asparagus tips .....	20 to 30
Carrots (cut up) .....	20 to 30
Celery .....	20 to 30
String beans (young) .....	20 to 30
Onion (boiled) .....	20

**Other Vegetables.**—If given for the prevention of scurvy, or to aid nutrition, if cooked as described above, or as the juice of a combination of the root and leaf vegetables, if cooked for less than one-half hour, will answer the same purpose as tomatoes. They have more value in the amount of salts which they furnish for the making of teeth and bones. All aid in developing the jaws.

**Cereals in Relation to Vitamines.**—They contain little vitamine substance, but are valuable for their salts, which are used in the formation of teeth and bones.

**Steaming Vegetables.**—Less salts are lost than when boiling; the time consumed is approximately the same.

Method.—A rice steamer. Vegetables may be placed in a tightly covered receptacle with finely perforated bottom, or any type of steamer, which holds the vegetables out of the water.

**Cooking Spinach.**—Wash spinach thoroughly, and cook only in the water which it contains or adheres to it. Keep vessel covered.

**Raw Vegetable Juice.**—Finely cut up vegetables placed in a gauze sack; put the sack containing vegetables into meat or other press and squeeze out the juice.

### Cooking Vegetables with Reference to Vitamine Destruction.

**Vitamine A.**—Unless there is free access of air while cooking, heat does not appreciably destroy it. Acids and alkalies have little effect upon it.

**Vitamine B.**—Unless an *alkali* is used, ordinary cooking will not destroy it. If an alkali is used, enough remains for normal growth.

**Vitamine C.**—It is much more sensitive to heat and alkali. Prolonged heating is more destructive than quick heating. In cooking vegetables use neither acid nor alkali.

## CHAPTER XV.

### Sample Diet List for a Child from Five to Twelve Months Old—Comments.

	Approximate No. of Calories.
6 A. M. Bottle or nursing.	
Between 6 A. M. and 10 A. M., one teaspoonful to two tablespoonfuls of orange juice (strained), diluted at first .....	12
10 A. M. Some cereal jelly, preferably oatmeal, but whichever is palatable, half level tablespoonful, increasing gradually to three level tablespoon- fuls. (Later any well cooked cereal) .....	18-36
Bottle or nursing (after the solid food).	
2 P. M. Beef juice, one teaspoonful and increase to one and one-half tablespoonfuls; dilute one-half at first .....	5
Vegetables.—Start with one-half teaspoonful and put through a strainer; gradually increase any one up to one level tablespoonful.	
By the beginning of the eleventh month, may have one level tablespoonful each of two vegetables.	12-24
Use vegetables which can be cooked in half an hour or less.	
Start with potato (cooked with the skin on), car- rot or spinach.	
Toward the latter part of the first year, peas, string beans, cauliflower, asparagus tips.	
Bottle or nursing (after the solid food).	
Let the child have chicken bone or bone of lamb chop, almost all the meat taken off, every day or so, to gnaw on.	
6 P. M. Bottle or nursing (after the solid food). (Beginning of the tenth month—three level table- spoonfuls of cereal.)	

- 10 P. M.** Bottle or nursing. (Discontinue at the beginning of the eleventh month.)
- Divide one piece of toast, three by three and one-half by one-half inches, with butter, into three or four portions and give during the day, at or around mealtime. Start this at once..... 62
- Approximate value of the additional foods (bottle mixture not included) ..... 109-139

### Comments on the Diet List for Five to Twelve Months.

**Cereals.**—Usually a cereal jelly in the beginning, and later (eleven to twelve months), well cooked cereal, a teaspoonful at first, gradually increasing to three tablespoonfuls.

#### Vegetables.

**Variety.**—The root vegetables, as carrots, parsnips, potatoes, and other vegetables, such as spinach, Brussels sprouts, kale, peas, asparagus tips.

**Amount.**—A teaspoonful of these at first cooked for a half hour, and strained. Increase this gradually to two or three tablespoonfuls later.

**White Bread—Uses.**—This has a high fuel value, but few vitamine substances. The latter is supplied in other foods.

**Its Value.**—It is also important, if given in crusty form (French or Vienna), or crisp toast or zwieback as a “tooth brush”, to develop the jaws. Its starch value is high.

**Butter.**—This should be put on bread or toast, as it is rich in vitamins.

**Chicken and Beef Bones.**—The infant is given these to gnaw on, whether teeth are present or not, to



develop the jaws and aid in the eruption of the teeth.

**Beef Juice**—It is necessary for the organism and takes up little space.

**Amount.**—The amount is from one teaspoonful, gradually increasing to one and one-half tablespoonfuls.

**Soup or Broth.**—Its value—very little in the way of nourishment, except for the vegetables in it. It takes up space in the stomach which may be used to better advantage. It is given as a change and a palatable relish.

**Note.**—Always give the solid food first before the bottle or nursing.

# Feeding After the First Year.

## CHAPTER XVI.

### DIET LISTS FROM ONE TO TWELVE YEARS INCLUSIVE.

#### Sample Diet for a Child, from Twelve to Fifteen Months.

Weight ..... 22 pounds  
Age ..... 13 months  
Approximate height ..... 29½ inches

Approximate No.  
of Calories.

Caloric requirement—age, weight, and height.... 880  
Calories permitted between 12 and 15 months....800-1100

7 A. M. Milk, eight ounces (from cup by thirteenth  
month) ..... 168

(No sugar.)

Crisp toast, rusk or bread, preferably (French or  
Vienna) one piece with butter (one by three by  
one-half inches) ..... 36

10 A. M. Milk, eight ounces (from cup by thirteenth  
month) ..... 168

(No sugar in milk.)

Cereal—oatmeal, (preferably) hominy, farina or  
rice, well cooked, three tablespoonfuls, with  
milk from the eight ounces mentioned above,  
and one teaspoonful of granulated sugar ..... 38

Crisp toast, rusk or stale bread and butter, one  
piece, one by three by one-half inches ..... 36

Juice of one orange (medium size) ..... 80

Approximate No.  
of Calories.

<b>2 P. M.</b> Milk, five ounces (from cup by thirteenth month—no sugar in the milk), when not taking broth.	
Beef juice, one and one-half ounces, diluted with one ounce of water, four or five times a week, or mutton, chicken or beef broth, with rice, if desired, or stale bread included in it, five ounces, about twice a week. May put beef juice, undiluted, on potato or stale bread or toast .....	40-105
Seraped beef, with bread crumbs, one teaspoonful, two or three times a week. (Let him serape the bone with his teeth.) .....	15
Bread, same as above, with butter, one piece same size .....	36
Two of any of the following vegetables, cooked one-half hour or less, one level tablespoonful of each .....	24
Selection from—potatoes, spinach, parsnips, peas, cauliflower, carrots, string beans (young), asparagus tips	
Stewed prune pulp, baked apple, apple sauce, one level tablespoonful .....	25
<b>6 P. M.</b> Milk, eight ounces (by thirteenth month from cup, and no sugar in the milk) .....	168
Crisp toast, bread or rusk same, one piece of any one, same size as above .....	36
Cereal—any cooked—three level tablespoonfuls, with milk from the above, and one teaspoonful of granulated sugar .....	38
One graham cracker .....	50
Any of the fruits mentioned at the 2 P. M. feeding, same amount .....	25
Approximate value of the foods selected .....	983-1048
End every meal with fruit; some bread or toast toward end of meals. Cook potatoes with the skins on. Milk from cup by thirteenth month. Not more than twenty-nine ounces of milk daily. At least eight ounces of water daily, between meals.	

**Fuel Units or Calories.**—The figures at the side represent the approximate fuel or food values of the quantities given. These need not confuse, as they represent safe amounts of the foods selected. A liberal leeway is permitted, but it must be within certain limitations.

Too much food is as bad as too little. It would be well for the mothers and nurses to have intelligent ideas of the food values and vitamines content of the foods which the child is taking. (Table of Food Values under "Miscellaneous" Articles.)

**Omitting Sugar.**—The diet shows that the sugar is omitted from the milk mixture.

**Drinking from a Cup.**—When the child is thirteen months old, milk and other liquids are given from a cup. With this in view, "part" feedings should be started with the cup during the twelfth and thirteenth months.

**Broths.**—Broth is only given about twice a week. It takes up room and has little nutritional value. It is given as a change or as an appetizer.

**Beef Juice.**—It is more nutritious, is chemically unchanged, and leaves room for other things.

**Butter.**—Butter aids in furnishing salts for teeth and bones, and is rich in vitamines.

Oleomargarine does not take the place of butter.

**Scraped Beef.**—This necessitates mastication, which helps to develop the jaws.

**Vegetables.**—A selection of vegetables is important in the first few years, which, when cooked a limited time (a half hour or less), are rich in vitamines. (See cooking of vegetables.)

They furnish a high proportion of salts, for teeth and bones. Potatoes are to be cooked with the skins on, to retain their salts.

After the twelfth month, do not strain or put vegetables through a colander.

Cereals are rich in salts but not in vitamins. These compose an important part of the dietary, but not to the neglect of other equally important articles.

**Fruits.**—At the end of a meal as a savory stimulant for the benefit of the teeth; also to furnish vitamins.

**Crusty Bread.**—Given toward the end of a meal, acts as a tooth brush. Bread is rich in starch and sugar, contains proteids, and furnishes many calories.

### Sample Diet List for a Child from Fifteen to Eighteen Months.

Weight ..... 24 pounds

Approximate height ..... 31 inches

Approximate No.  
of Calories.

Caloric or food requirement—age, weight and height ..... 960

Calories permitted between fifteen and eighteen months ..... 900-1200

7 A. M. Milk, eight ounces ..... 168

Cereal—any variety—cooked preferably, four to eight level tablespoonfuls, with milk from the eight ounces mentioned above, and granulated sugar, one teaspoonful ..... 44-68

Egg, soft boiled, poached or coddled, or bacon, one to two slices. (The egg, two or three times a week, if desired) ..... 20-75

	Approximate No. of Calories.
Bread, French or Vienna, crisp toast or rusk, one slice three by three and one-half by one-half inches, with butter .....	62
Juice of one orange (medium size) .....	80
11 A. M. Milk, six ounces .....	126
2 P. M. Chicken or beef broth, five ounces, with rice if desired, two or three times a week, or any milk or cream soup, once or twice a week. May have five ounces of milk if not taking soup ....	40-105
One-half slice of crisp toast, rusk or bread (French or Vienna), and butter. (Dimensions, one and one-half by one and three-fourths by one-half inches) .....	31
Scraped beef or lamb chop, part of the meat cut into pieces (let the child scrape the bone with his teeth); chicken, or roast beef, or steak, cut up, one piece of any one, two by two and one-half by one fourth inches; or, beef juice three-fourths ounce on potato or bread, instead of meat .....	42
Two of any fresh vegetables, two level tablespoonfuls of each. Of the following, select those which can be cooked in half hour: spinach, Brussels sprouts, kale, cabbage, potatoes, turnips, tomatoes, cauliflower, carrots .....	48
Baked apple, stewed apple, stewed prunes (juice and pulp), juice of stewed peaches (fresh), about one level tablespoonful .....	25
6 P. M. Milk, eight ounces (in cup) .....	168
Cereal—any variety—cooked, four to eight level tablespoonfuls, and one teaspoonful of granulated sugar .....	44-68
Crisp toast, rusk or bread (same as at breakfast), one piece with butter .....	62
Also any of the fruits mentioned at the 2 P. M. feeding, same amount .....	25

Approximate No.  
of Calories.

Approximate value of the foods indicated .....985-1153

Not more than twenty-nine ounces of milk daily.

Give milk from cup by thirteenth month. End every meal with fruit. Some bread or toast toward end of meals. Cook potatoes with the skins on. Try to give at least eight ounces of water, between meals and at bedtime. Nothing to eat between meals.

**Milk.**—Retains its important position in the dietary.

**Eggs.**—Some children do not take eggs well. Proceed cautiously. The yolk is rich in vitamine substances.

**Meat.**—It is not to be cut up too finely. Roughage to clean the teeth and develop the jaws is needed.

**Fruit.**—Larger variety and quantity.

### Sample Diet List for a Child from Eighteen to Twenty-four Months.

Weight ..... 26 pounds

Approximate height ..... 33 inches

Approximate No.  
of Calories.

Caloric or food requirement for age, weight and height ..... 1040

Calories permitted between 18 and 24 months ....900-1200

7 A. M. Milk, eight ounces (in cup) ..... 168

Cereal—any variety—cooked preferably, four to eight level tablespoonfuls, with milk from the eight ounces mentioned above, and one teaspoonful of granulated sugar ..... 44-68

Crisp toast, rusk or bread (Vienna or French), one piece, three by three and one-half by one-half inches with butter ..... 62

	Approximate No. of Calories.
Egg, soft boiled, poached, or coddled; or one to two slices of bacon. (Occasionally omit the egg) .....	20-75
Juice of one orange (medium size) .....	80
<b>11 A. M.</b> Milk, six ounces (in cup) .....	126
<b>2 P. M.</b> Chicken, beef or mutton broth (in cup), five ounces, with rice if desired, or any milk or cream soup instead, once or twice a week. May have six ounces of milk when not taking soup..	40-126
One slice of bread (French or Vienna), or crisp toast or rusk, same size, and butter .....	62
Beef or lamb chop, part of the meat moderately well cut up (may scrape the bone with teeth), chicken, or steak, one piece of any one, three by two and one-half by one-fourth inches; or beef juice, three-fourths ounce, on potato or bread, instead of meat .....	60
Two of any fresh vegetables (two level tablespoonfuls of each) .....	48
Of the following, select those which can be cooked in half an hour: spinach, string beans, cabbage, celery, tomatoes, carrots, potatoes, Brussels sprouts, kale, beets, peas, lima beans, asparagus tips.	
May have custard, constarch, tapioca or plain rice pudding, two level tablespoonfuls, instead of one of the vegetables .....	40
Baked apple, stewed apple, stewed prunes, stewed fresh pineapple, about one to two level tablespoonfuls, or two small peaches, or one pear, when in season .....	25-50
<b>6 P. M.</b> Milk, eight ounces (in cup) .....	168
Cereal—any variety—cooked preferably, four to eight level tablespoonfuls, with milk from the eight ounces mentioned above, and one teaspoonful of granulated sugar .....	44-68



Approximate No.  
of Calories.

Bread (French or Vienna), or crisp toast, or  
rusk, one to two slices, with butter; same size.. 62-124

Also any of the fruit mentioned at the 2 P. M.  
feeding; same amount ..... 25-50

Approximate caloric value of the foods selected ...1074-1375

May have twenty-six to twenty-eight ounces of  
milk daily. At any time may have graham or  
other crackers (two), instead of one piece of  
bread or toast. Cook potatoes with the skins  
on. Always end meals with fruit. Some bread  
or toast toward end of meals. Nothing to eat  
between meals. This includes candy and choco-  
late. Occasionally a piece or two of candy dur-  
ing meals.

### Sample Diet List for a Child from Two to Three Years.

Weight ..... 28½ pounds

Approximate height ..... 35 inches

Approximate No.  
of Calories.

Caloric or food requirement—age, weight and  
height ..... 1083

Calories permitted between two and three years, 1000-1300

**Breakfast.** Milk, eight ounces ..... 168

Cereal—any variety—cooked, one-half cup, with  
milk from the eight ounces mentioned above,  
and one teaspoonful of granulated sugar ..... 68

Bread, preferably French or Vienna, crisp toast  
or rusk, one thin slice, three by three and one-  
half by one-half inches, with butter ..... 62

Egg, soft boiled, poached or coddled; or two  
slices of bacon, or one slice of broiled ham ..... 50-75

Juice of one orange (medium size) ..... 80

**11 A. M.** Milk, six ounces ..... 126

	Approximate No. of Calories.
<b>2 P. M.</b> Chicken, beef or mutton broth, five ounces, with rice or vegetables, four or five times a week, or any milk or cream soup, once or twice a week. May have six ounces of milk, if soup is not taken .....	40-126
One or two slices of bread (French or Vienna), or crisp toast or rusk, with butter .....	62-124
Beef or lamb chop, part of the meat moderately well cut up (may take part of the meat off of the bones with his teeth); chicken or roast beef or steak, fish or sweetbreads; one piece of any one, three by two and one-half by one-fourth inches; or beef juice, three-fourths ounce, on potato or bread, instead of meat .....	60
Two of any fresh vegetables, two level table- spoonfuls of each .....	48
Of the following, select those which can be cooked in half an hour: spinach, string beans, cabbage, celery, tomato, carrot, potato, lima beans, Brussels sprouts, kale, cauliflower. (The first seven, iron-giving in order of importance.) May have custard, constarch, tapioca, or plain rice pudding, two level tablespoonfuls, instead of one of the vegetables .....	40
Baked apple, stewed apple, stewed prunes, stewed fresh pineapple, about one to two table-spoon- fuls; or one pear or two peaches, or one-half small grapefruit .....	25-50
<b>6 P. M.</b> Milk, eight ounces (in cup) .....	168
Cereal—any variety—cooked preferably, one-half cup, with milk included from the eight ounces mentioned above, and one teaspoonful of sugar, .....	68
Bread (Vienna or French), or crisp toast or rusk, one slice with butter; same size .....	62
One or two teaspoonfuls of jelly occasionally. .	
Also any of the fruit mentioned at the 2 P. M. feeding; same amount .....	25-50

Approximate No.  
of Calories.

Approximate caloric value of the foods indicated, 1152-1375

End every meal with fruit. Some bread or toast, toward the end of the meals. See that the child does not neglect vegetables for meat. Not more than twenty-eight ounces of milk daily. Give water at meals and at bedtime, one-half to one glass at a time.

**Plain Desserts.**—Plain desserts are also added to the dietary.

**Quantities.**—These are increased.

**Candy.**—It is less harmful to the teeth, during meals, and will not spoil the appetite.

**Meats.**—"Sweetbreads" have been included. There is evidence to show that certain glandular tissues contain vitamine substances in greater quantity than muscle tissue, as beef, etc. Probably calves' liver, chicken liver, and "sweetbreads," share these properties.

### Sample Diet List for Child from Three to Four Years.

Weight ..... 33 pounds

Approximate height ..... 38 inches

Approximate No.  
of Calories.

Caloric or food requirement—age, weight and  
height ..... 1254

Calories permitted between three and four years, 1100-1400

<b>Breakfast.</b> Milk, one glass, eight ounces .....	168
Cereal, cooked preferably, one-half cupful, with one teaspoonful of granulated sugar and milk from the eight ounces mentioned above .....	68
Two pieces of bacon and one egg .....	115

	Approximate No. of Calories.
Bread, preferably French or Vienna, crisp toast or rusk, one to three slices, with butter .....	62-186
Three tablespoonfuls of apple sauce, or juice of one orange .....	50-80
<b>Dinner.</b> Soup, five ounces. May have six ounces of milk if soup is not taken .....	40-126
One or two slices of bread (French or Vienna), or rusk, and butter .....	62-124
Beef or lamb chop, steak, fish, chicken or sweet- breads, partly cut up (should be encouraged to eat meat from the bone); one piece of any one, three by three and one-half by one-fourth inches; or beef juice, three-fourths of an ounce, on potato or bread, instead of meat .....	60
Two of any fresh vegetables, two level table- spoonfuls of each. Of the following, select those which can be cooked in one-half hour: spinach, string beans, cabbage, celery, tomato, carrots, potato, Brussels sprouts, kale, asparagus, tur- nips, beets, lima beans .....	48
May have custard, cornstarch, tapioca or plain rice pudding, instead of one of the vegetables; two level tablespoonfuls .....	40
A little fruit, even if pudding is taken, such as a tablespoonful of orange juice, a piece of raw apple, a little apple sauce, etc.	
Fruits, baked apple, stewed apple, stewed prunes, stewed fresh pineapple, two level tablespoonfuls, or one-half of a grapefruit, or one peach or one pear, when in season .....	50
<b>6 P. M.</b> Milk, eight ounces .....	168
Cereal—any variety—cooked, one-half cup, with milk from the eight ounces mentioned above, and one teaspoonful of granulated sugar .....	68
Breads (French or Vienna), toast or rusk, two slices, same dimensions as at breakfast, and butter .....	124

Approximate No.  
of Calories.

Also any of the fruits mentioned at the 2 P. M.  
feeding ..... 50-80  
Approximate value of the foods selected, ..... 1173-1505  
Not more than twenty-two to twenty-four ounces  
of milk daily. End every meal with fruit. Some  
bread or toast toward end of meals. Nothing to  
eat between meals. This includes candy and  
chocolate. Occasionally a piece or two of hard  
candy during meals. May have water with and be-  
tween meals.

### Sample Diet List for Child from Four to Five Years.

Weight ..... 37½ pounds  
Approximate height ..... 40 inches

Approximate No.  
of Calories.

Caloric or food requirements—age, weight and  
height ..... 1350  
Calories permitted between four and five years, 1300-1600

**Breakfast.** Milk, six ounces, one glass ..... 126  
Cereal, cooked preferably, one-half cup, with two  
tablespoonfuls of cream or milk and one tea-  
spoonful of sugar ..... 89-122  
Two slices of bacon and one egg (egg yolk, if  
anemic) ..... 115  
Bread (preferably French or Vienna), crisp toast  
or rusk, two slices three by three and one-half  
by one-half inches, and butter ..... 124  
Juice of one orange, or one-half grapefruit, one  
banana, one peach, or one pear ..... 50-80

**Dinner.** Small glass of milk, six ounces ..... 126  
Broth with vegetables, one cup, or any milk or  
cream soup ..... 40-126  
Two slices of bread (same), toast, or rusk, and  
butter, same size as above ..... 124

	Approximate No. of Calories.
Any meat (except roast pork), broiled, roasted or stewed, including fresh fowl, one piece three by two and one-half by one-fourth inches .....	60
Beef juice, two ounces, instead of soup, if anemic.	
Vegetables, two of any kind, giving about two level tablespoonfuls of any variety. If anemic, give especially spinach, string beans, cabbage, celery, tomato, carrots, potato, turnips, cauliflower, peas, lima beans. First seven are iron-giving, in order of importance. Cook vegetables not more than half an hour .....	48
Salads: fruit, lettuce with French dressing, tomato and lettuce, cheese and pineapple, one-half portion .....	100
Puddings: custard, cornstarch, tapioca or plain rice pudding, two to three level tablespoonfuls of any variety; or, fruit, such as baked apple, apple sauce, prunes (four or five); or fresh fruit in season, one helping. Also any of the fruits mentioned at breakfast. (For anemia, strawberries and grapes are iron-giving.) .....	50-80
6 P. M. Milk, one glass, or cocoa, six ounces .....	126
Cereal, cooked, or raw if preferred, amount same as at breakfast .....	89-122
Bread (same), crisp toast or rusk, and butter, two pieces, same dimensions as above .....	124
Also any of the fruits mentioned previously .....	50-80
Cake: lady fingers (three or four), or plain cookies (two), or molasses cookies (three), two inches in diameter .....	100
Approximate caloric value of the foods selected ....	1541-1783
May have graham or other crackers, one or two with any meal. Nothing to eat between meals. This includes candy and chocolate. Occasionally a piece or two of candy during meals. Give water between meals, and should drink four	

or five glasses daily. End every meal with fruit. Some bread or toast toward end of meals. Cook potatoes with the skins on.

### Diet List for Anemia.

**Salads.**—These are added at the noon meal and furnish vitamins.

**Iron Giving Foods.**—This list emphasizes certain articles, which are rich in iron and should be given to anemic children:

**Vegetables.**—Spinach, string beans, cabbage, celery, tomato, carrot, potato.

**Fruits.**—Strawberries and grapes.

**Meats.**—Beef and beef juice.

**Eggs.**—Especially the yolk.

**Cereals.**—Oatmeal.

**Bread.**—Whole wheat.

**Nut Pastes.**—Made with almonds, peanuts and walnuts.

### Sample Diet List for a Child Five to Seven Years.

Weight ..... 44 pounds

Approximate height ..... 43½ inches

Approximate No.  
of Calories.

Caloric or food requirement—age, weight and  
height ..... 1452

Calories permitted between 5 and 7 years ..... 1400-1700

**Breakfast.** Milk, one glass, six ounces ..... 126

Cereal, cooked preferably, one-half cup, with two  
tablespoonfuls of milk or cream and one tea-  
spoonful of sugar ..... 89-122

Two slices of bacon or one small slice of broiled  
ham, and one egg ..... 115

	Approximate No. of Calories.
(May substitute one small piece of liver for two slices of bacon.)	
Bread (preferably French or Vienna), or crisp toast or rusk, two slices, three by three and one-half by one-half inches, with butter .....	124
Juice of one orange, one-half grapefruit; one banana, or one pear .....	50-80
<b>Dinner</b> (Middle of the day). One glass of milk, six ounces .....	126
Broth with vegetables, one cup, or any milk or cream soup, two or three times a week .....	40-120
Two slices of bread, crisp toast or rusk, with butter, same size as above .....	124
Any meat (except roast pork), broiled, roasted or stewed, including fresh fowl, one piece three by two and one-half by one-fourth inches .....	60
Vegetables, two of any kind, giving about one-half cup in all: spinach, carrots, potatoes, cabbage, cauliflower, etc. Cook vegetables not more than half an hour .....	72
Salads: fruit, lettuce with French dressing, tomato and lettuce, cheese and pineapple, cold-slaw, half portion .....	100
Relishes: sweet pickles, olives or radishes .....	30
Puddings, custards, cornstarch, tapioca or plain rice pudding, two or three tablespoonfuls; or, fruits, baked apple, stewed apple, prunes (four or five); or fruit in season .....	100-50
A little fruit, even if cornstarch, pudding, etc., is taken. Give a tablespoonful of orange juice, piece of raw apple, or a little apple sauce.	
<b>Supper.</b> Milk, one glass, or cocoa .....	126
Cereal, any cooked, or raw if preferred; amount the same as at breakfast .....	89-122
Bread and butter (Vienna or French), crisp toast or rusk, two slices, same dimensions .....	124
Also any of the fruits mentioned above .....	50-80



Approximate No.  
of Calories.

Cake, lady fingers (three or four), one doughnut, or gingerbread, one piece, one by two inches, or sponge cake, two pieces one and one-half by one and one-half by two inches; or plain cookies (two), or molasses cookies (three), two inches in diameter .....	100
May have two teaspoonfuls of any jelly .....	25
Approximate food value of the foods indicated, ....	1670-1826
Nothing to eat between meals. This includes candy and chocolate. Occasionally a piece or two of hard candy during meals. Cook potatoes with the skins on.	

## Additions.

Relishes, gingerbread and cookies.

From 5 years of age, peanut butter or nut paste sandwiches, the nuts well ground up, may be substituted for the meat and the equivalent of bread, occasionally as a change at the noon meal.

Sample Diet for a Child, From Eight to  
Ten Years.

Weight ..... 62 pounds  
Approximate height ..... 51 inches

Approximate No.  
of Calories.

Caloric or food requirements—age, weight and height .....	1984
Calories permitted between 8 and 10 years .....	1700-2000
Breakfast. Milk, six ounces .....	126
Cereal—any variety—cooked, one-half cup, with milk or cream (two tablespoonfuls), and one teaspoonful of granulated sugar .....	89-122
Bread (French or Vienna), crisp toast, or rusk, two slices, three by three and one-half by one- half inches, and butter .....	124

	Approximate No. of Calories.
Two slices of bacon, or one small slice of broiled ham, and one egg .....	115
May substitute one piece of liver for two pieces of bacon.	
Juice of one orange, one banana, one pear or one-half grapefruit, or half a cantaloupe .....	50-80
<b>Dinner</b> (Middle of the day). One glass of milk, if desired .....	0-126
Two or three slices of bread (French or Vienna), same dimensions as above, and butter .....	124-186
Any meat (except roast pork), broiled, roasted or stewed, including fresh fowl, one piece three by two and one-half by one-fourth inches .....	60
Vegetables, two of any kind, giving about one-half cup in all. Of the following, select those which can be cooked in one-half hour: spinach, Brussels sprouts, kale, cabbage, asparagus, potatoes, turnips, tomatoes, cauliflower, carrots, beets, string beans, lima beans .....	72
Salads: fruit, lettuce with French dressing, tomato and lettuce, cheese and pineapple, cold-slaw, one-half to one portion .....	100-200
Relishes: olives, radishes, sweet pickles .....	30
Puddings: custards, cornstarch, tapioca or plain rice pudding, one-half cup or one helping; or, fruits—baked apple, apple sauce, prunes (four or five; or fresh fruit in season, one helping. (Strawberries and grapes, iron-giving.) Also any of the fruits mentioned at breakfast. If pudding is taken, always give small amount of fruit in addition, even if only a tablespoonful of orange juice, piece of raw apple, apple sauce, etc., at end of meals .....	125-50
<b>Supper.</b> Milk, one glass, or cocoa .....	126
Cereal—any variety—cooked, or raw if preferred, (amount, same) as at breakfast .....	89-122
Bread (same), crisp toast, rusk and butter, two to three slices .....	124-186

	Approximate No. of Calories.
Also any of the fruits mentioned above .....	50-80
Cake, lady fingers (three or four), or one doughnut, or gingerbread, one piece one by one by two inches, or sponge cake, two pieces one and one-half by one and one-half by two inches, or plain cookies (two), or molasses cookies (three), two inches in diameter .....	100
Approximate value of the food selected .....	1504-1905
Nothing to eat between meals. This includes candy and chocolate. End every meal with fruit. Some bread or toast toward end of meals. May have water with meals and at bedtime. Should drink four or five glasses daily.	

**Meats.** Not at night. Both digestion and sleep are better served without them.

### Sample Diet for Undernourished or Tuberculous Child—(Eight to Ten Years).

Age .....	8	years
Weight .....	50½	pounds
Height .....	50½	inches

Approximate No.  
of Calories.

Caloric or food requirements—age, height and correct weight (fifty-nine pounds) .....	1888
Calories permitted between 8 and 10 years .....	1700-2000

<b>Breakfast.</b> Milk, six ounces .....	126
Cereal—any variety—cooked, half cup with cream, (two tablespoonfuls), and one teaspoonful of granulated sugar .....	122
Bread (French or Vienna), crisp toast or rusk, two slices, three by three and one-half by one-half inches, and butter .....	124
Two slices of bacon and one egg, or one small slice of broiled ham, and one egg .....	115
Juice of one orange (medium size), one banana, or	

	Approximate No. of Calories.
one pear, peaches (two), half of a grapefruit, or half of a cantaloupe .....	50-80
<b>10.30 A.M. Lunch.</b> One glass of milk with three tea- spoonfuls malted milk in it, or same with raw egg, or same with chocolate .....	171-238
<b>Dinner.</b> Middle of the day, one glass of milk .....	126
Two or three slices of bread (French or Vienna), same dimensions as above, and butter .....	124-186
Any meat except roast pork, broiled, roasted or stewed, including fresh fowl, one piece of any kind, three by two and one half by one-fourth inches .....	66
In place of meat and an equal amount of bread, may substitute one peanut butter sandwich, or other nut paste sandwich (the paste to be spread thick), or cream cheese (two by one by one-half inches); American (pale), Neufchatel, or Swiss cheese (two level tablespoonfuls of any one) sandwich .....	40
Vegetables—Two of any kind, giving about one- half cup in all. Of the following select those which can be cooked in half an hour. Selec- tion from, spinach, string beans, cabbage, celery, tomatoes, carrots, potatoes, cauliflower, peas, as- paragus, turnips, beets, lima beans. The first seven iron giving in order of importance.....	72
Salads—Fruit, lettuce with French dressing, tomato and lettuce, cheese and pineapple, cold- slaw, one-half portion .....	100
Relishes—Olives, radishes, sweet pickles or celery ...	30
Puddings, custards, cornstarch, tapioca, sago, or plain rice pudding, one-half cup or one help- ing. (Encourage desserts made with plain milk and eggs) or fruit in season, one helping (straw- berries and grapes, iron giving). Also any of the fruit mentioned at breakfast .....	150-50

Approximate No.  
of Calories..

When pudding is taken, always give a small amount of fruit in addition, even if only a tablespoonful of orange juice, piece of raw apple, apple sauce, etc., at end of meals.

**4.30 P.M. Lunch**—Same as ten thirty A.M. .... 171-238

**Supper**—Milk, one glass or cocoa ..... 126

Cereal—any cooked, or raw if preferred, with cream (amount same) as at breakfast ..... 122

Also any of the fruit mentioned above ..... 50-80

Bread, same, crisp toast, rusk and butter, two to three slices ..... 124-186

Cake, lady fingers, three or four, or one doughnut, or gingerbread, one piece, one by one by two inches, or sponge cake two pieces, one and one-half by one and one-half by two inches, or plain cookies two, or molasses cookies three, two inches in diameter ..... 100

Approximate value of the food selected ..... 2103-2321

End every meal with fruit. Some bread or toast toward end of meals. Cook potatoes with the skins on. Cooking vegetables—Cut them into small pieces and place in boiling water.

Encourage the use of butter, also of oily dressings on salads. The child should drink four or five glasses of water daily.

**10.30 A.M. or, 4.30 P.M.**—In place of half or whole of beverages given at 10.30 A.M. and 4.30 P.M., the child may have 12 to 15 almonds, or 2 Brazil nuts, or 4 to 5 butternuts, or one-fifth cup of shredded cocoanut, or 15 hickory nuts, 20 to 24 single peanuts, pecans (12 meats) or 8 to 16 English walnut meats.

### Sample Dietary for a Child from Ten to Twelve Years.

Weight .....	72 pounds	
Approximate Height .....	54 inches	
		Approximate No. of Calories.
Calorie or food requirements—age, weight and height .....		2232
Calories permitted between ten and twelve years	1800-2300	
<b>Breakfast</b> —Milk, one glass, six ounces .....		126
Cereal—cooked or raw, one-half cup with two or three tablespoonfuls of thin cream and one level teaspoonful of granulated sugar .....		118-143
Two slices of bacon, or one slice of broiled ham, and one egg .....		115
Bread—Preferably French or Vienna, crisp toast or rusk, two to three slices with butter .....		124-186
Juice of one medium sized orange, or any fruit, stewed, fresh or baked .....		50-80
<b>Lunch</b> —Milk, one glass or cocoa .....		126
Bread—Two to three slices, crisp toast, or rusk and butter .....		124-186
Vegetables—Two or three, including rice, giving about half cupful .....		72
Small portion of meat, any, (except roast pork) broiled, roasted or stewed, including fresh fowl, or fish (dimensions of piece, four by two and one-half by one-fourth inches) .....		85
Pudding—some plain, one-fourth cup occasion- ally, or fruit, same as at breakfast, same amount		125-50
May have small piece of sponge cake or couple of small cookies .....		50-100
<b>Dinner</b> —at night—one glass of milk .....		126
Soup .....		40-126
Small piece of meat, preferably chicken, two to four, by two and one-half by one-fourth inches		42-85
Two or three of any vegetables, including rice, giving about one-half cupful .....		72

Approximate No.  
of Calories.

Salads—Fruit, lettuce with French dressing,  
tomato and lettuce, cheese and pineapple, cold-  
slaw, one-half to one portion ..... 100-200

Relishes—sweet pickles, radishes, olives, celery.. 30

Fruits—Baked apple, apple sauce, prunes, four or  
five, or fresh fruit in season, one helping, also  
see fruits at breakfast; or bread, rice or other  
nutritious pudding; or cake, lady fingers, three  
or four, or gingerbread, one piece one by two  
inches, or sponge cake, two pieces or plain  
cookies (two), or molasses cookies, three, two  
inches in diameter ..... 50-200

Bread—two or three pieces, with butter and jelly 124-211

Approximate number of calories ..... 1699-2319

This maximum figure will never be reached. It  
includes possible choices.

End all meals with fruit. Some bread or toast  
toward end of meals. May have water with  
meals and should drink four or five glasses  
daily. Nothing to eat between meals. This in-  
cludes candy and chocolate. Occasionally a piece  
or two of hard candy during meals. Cook potatoes  
with the skins on. See that the child does not  
neglect vegetables for meat.

### Dietary After Twelve Years.

This is the same as for adults, but the foods, in  
the order of their importance, with reasons for this,  
and the methods of selection, have been emphasized in  
the diet lists and are just as applicable then.

**Dinner.**—By this time the child may safely have the  
dinner at night.

**Cereals.**—Preferably cooked, should be eaten for  
breakfast.

**Vegetables.**—At least two should form a part of both noon and evening meals. With most children they are a cultivated taste, and should be insisted upon.

**Meat.**—Moderate amounts,—most children like them, and have to be restrained. The vegetables should be eaten first, or with the meat.

**Other Desserts.**—At the end of every meal, at least a small portion. Fruit is better than other desserts. The latter always plain, may be substituted for a change.

**Salads.**—Excellent and ought to be included in each dietary.

**Hot Breads.**—Never good. Certainly they should not be given before thirteen or fourteen years. They will, of course, be insisted upon, but must be used only occasionally. This is also true of pastries.

**Milk.**—Whenever cocoa is used, it should be made with milk. Desserts composed largely of milk are nutritious.



## CHAPTER XVII.

### THE SCHOOL LUNCH

**Time.**—From twelve to one. If it is much later than this, a lunch in the middle of the morning, in quantity about one-third of the ordinary amount is advisable.

**The Proper Kind.**—A warm lunch or dinner.

**The Basket Lunch.**—These are rather unsatisfactory, principally because as usually made up, they are make shifts, with no regard for a “well balanced meal.”

**Well Balanced.**—“Well balanced” means that they contain a proper proportion of proteids, fats and sugar, salts, water and the accessory food factors, the vitamins. If this is taken into consideration, it may be as nutritious as any other meal.

**Partial Basket Lunch.**—The basket lunch may be partial, that is, intended to be “filled in,” with hot soup and meat at school. This will not be considered, as there is no occasion for it.

#### The Complete Basket Lunches for Children.

##### Examples of Badly Balanced Lunches.

**Too Much Proteid and Fat—Too Little Sugar.**

**Example.**—Beef sandwich or peanut butter sandwich, cottage or cream cheese, an egg and olives.

**Too Much Sugar—Low Proteid and Fat.**

**Example.**—Jelly sandwiches, fruit, cakes or cookies, radishes.

**Examples of Well Balanced Lunches for a Child  
Eight to Eleven Years of Age.**

I.	Approximate No. of Calories.
One and one-half meat sandwiches, three by three and one-half by one and one-fourth inches (the meat sliced, or minced); or one-half of an ordinary club sandwich .....	313-300
Cookies (two), or one piece of sponge cake, three by three by one inches .....	100-200
Olives (three or four) .....	50
Food value .....	463-550

**II.**

One crisp roll, filled with chipped meat, mixed with salad dressing .....	274
Mixture of cut up fresh fruit, or berries (one cup)...	100
One piece of any plain cake, three by three by one inches .....	200
Radishes (two or three), or a couple of pieces of celery.	
Food value .....	574

**III.**

One and one-half cheese sandwiches, three by three by one and one-fourth inches (American, cottage, or Swiss) .....	350
Half cup of custard .....	150
One peach (moderate size), or small apple .....	50
One graham cracker .....	50
Radishes (two or three, small).	
Food value .....	600

**IV.**

One egg sandwich (with Mayonnaise dressing), three by three by one and one-fourth inches .....	308
Olives (three or four) .....	50
Dates (three or four), or figs (two, ordinary size)...	100
Piece of plain cake, three by three by one-half inches,	100
Food value .....	558

## V.

Approximate No.  
of Calories.

Bottle of milk, eight ounces .....	168
Boston brown bread and butter, one or two pieces, three-fourths by three inches in diameter .....	108-216
Apple sauce, half cup .....	132
Plain cookies (three) .....	150
Food values .....	558-666

## VI.

Two peanut butter or other nut paste (thick) sand- wiches .....	348
Baked apple, one-half, large .....	100
Cottage cheese, one-half cup .....	108
Gingerbread, one by two by two inches .....	100
Food value .....	656

**Substitutes.**—One jelly sandwich (three, by three and one-half, by one inches) may be substituted for three cookies, or one piece of cake or gingerbread.

One and one-quarter glasses of milk, (ten ounces); or three-fourths of a cup of cocoa, made with milk, may be taken instead of one meat sandwich.

Water or milk should be drunk with each meal. Sweetened milk chocolate (high fat and sugar value), a piece three by one by one-eighth inches, may occasionally be substituted for one-half glass of milk or about one-third of the meat sandwiches. It is not as good as either. If they agree, substitute occasionally, whole wheat, oatmeal, brown, raisin or nut bread, for white bread.

### Analysis of Lunches.

**Proteids and Fats.**—These are furnished by the meat, eggs, mayonaise dressing, cream cheese, peanut

butter, milk, club sandwich, potato salad (because of dressing), dates (proteid, fat and sugar), sweetened milk chocolate (contains high fat, and moderate sugar), olives, cocoa (fat and sugar about half and half), nuts (mostly fat, next proteids and sugar).

**Sugar.**—Cakes and cookies, bread, fruit, radishes, dates, figs, custard, sweetened milk chocolate, cocoa, (fat and sugar about half and half). Celery (also moderate proteid).

**Lunch for Children from Six to Eight Years.**—This may be from two-thirds to the full amount of that which a child from eight to eleven years requires, depending upon the age.

**Lunch for Children from Eleven to Fourteen Years, (High School Age).**—The amount may be increased to one-quarter or one-third more of each or all articles specified in lunches from eight to eleven years.

## PART II.

### Hygiene and Development.



## CHAPTER XVIII.

### Outfit for the Baby—Hygiene of the Baby—Daily Routine and Exercise

#### OUTFIT FOR THE BABY.

Four dozen napkins, made of birdseye, two sizes, 20 inches and 24 inches wide, either square or oblong.

Four abdominal bands, six to eight inches wide, and 20 inches long, soft flannel strips unhemmed.

Four knit bands, with shoulder straps.

Four silk and wool shirts, buttoned down the front.

Four flannel skirts, "Gertrude style."

Four cotton petticoats (to be worn only in summer and not flannel ones).

Eight white slips, nainsook.

Four gowns of outing flannel, buttoned in front.

Two knitted sacks.

One cloak.

Two caps.

Three quilted pads.

Two pieces of rubber cloth, one yard square.

One fine hair pillow for buggy (ten by twelve inches).

Six pillow slips.

Six sheets.

Two blankets, Baby Bunting.

Six pairs of silk hose.

One Eiderdown blanket wrap or bag, with hood for outing, in cold weather.

Hot water bag, two quarts, with flannel cover.  
Pincushion containing three sizes of safety pins.  
Drying frames for skirts and stockings.  
A low chair without arms.  
A high table to bathe and dress the baby on.  
Baby scales as discussed elsewhere.  
Apron bath blanket of outing flannel.  
Soft towels.  
Soap box with white castile soap.  
Talcum powder in box.  
White vaseline in tube.  
Zinc ointment, 5 per cent.  
Absorbent cotton wrapped in towel.  
One pair of blunt scissors.  
Solution of boracic acid.  
Bath thermometer.  
Soft hair brush.  
Fine tooth comb.  
Cheese cloth, for wash rags.  
Wooden tooth picks for cleaning nose.  
Medicine dropper.

## THE HYGIENE OF THE BABY.

### The Bath

**Sponge Baths.**—These should be given until the cord has separated. The infant is placed on a soft bath towel (Turkish), on the mother's or nurse's lap, or preferably, on a high dressing table.

**Tub Baths.**—These may be started after the cord has separated.

**Time.**—Before the ten A.M. feeding; a sponge before 6 P.M. feeding.



**Temperature of Water.**—100° F. for the first six months. During the latter half of the first year between 90° and 95° F.

**Temperature of the Bathroom.**—About 70° F. It is found to become warmer with the doors closed. The temperature of the rooms in which most infants are bathed is much too high, so that when taken into another room they are liable to catch cold.

**Method.**—Always support a young infant while in the bath with one arm under its back.

**Cloths.**—Use a different one for the face (a cheese-cloth preferably) than that which is to be used for the body. If there is any discharge from the genitals, use one for this purpose, which can be thrown away.

**Soap.**—Castile is the best. If not available, a fine white soap.

**Drying.**—Pat the infant. Do not rub. Be sure that all the soap has been thoroughly rinsed off first, as, in combination with the urine, or stool, it may produce irritation. Make a special effort to wash and dry in all the creases of the body and legs, especially the groins.

**Powder.**—After thoroughly drying, use some infant powder freely, especially between the folds of the skin. If an irritation on the buttocks occurs, an ointment of 5 per cent. zinc oxide is better than powder.

### The Genitals.

**The Boy.**—Always pull the foreskin back once daily so that the glans penis is completely exposed.

This is usually neglected, from a lack of understanding as to how far the skin should be retracted. It should be pushed back, as far as possible, without fear of hurting. Always draw the skin forward after cleansing. The cleansing should be done with soap and water, by means of cotton.

**The Girl.**—Cleanse externally *only* with cotton and water, unless otherwise ordered.

**The Buttocks.**—Wash the buttocks and skin with soap and water, while on the mother's or nurse's lap; then place the infant in the tub to rinse.

**The Bran Bath.**—If the skin is sensitive, or chapped, do not use soap. Put five or six ounces of bran in a cheesecloth bag. Let this soak into the water.

### The Eyes.

**Method.**—Use a separate piece of cotton for each eye, saturated with boracic acid solution (2 per cent.). To make solution, put a level teaspoonful of boracic acid into two tumblerfuls of hot water. Use the solution slightly warm. Rub *toward* the nose. If a discharge is present, the eyes should be examined by a physician.

**Soap.**—Young infants do not need soap on their faces. It is to be used on their bodies and scalps.

### The Nose.

The inner edges of the nostrils should be cleansed with cotton on the end of a tooth pick dipped into boracic acid solution.

### The Mouth.

Except immediately after birth, the mouth will take care of itself. Attempts at cleansing do more harm than good. A teaspoonful or two of water after a feeding will rinse the mouth.

### The Skin.

Attention to this has been described under bathing. If the infant shows symptoms of heat, put on lighter clothing (discard wool and flannel) sponge two or three times daily with water (temperature 90-98° F.), and powder freely. In the very hot weather a diaper is often all that the infant will require while lying in bed during the day.

### How to Lift the Baby.

If a young baby, always support the spine. Slip the left hand under the back beneath the shoulders. Spread the fingers so as to support the head and neck, and use the right hand to lift the legs.

**Encouragement.**—It is well for sensible, careful mothers and nurses not to dread the lifting of the baby for purposes of bathing, and other things.

While some serious results might follow the infant's fall, it is most likely that there will be no evil consequences, as the bones at that age are not brittle. Those of the skull "give," in response to an ordinary knock, because of the imperfectly closed sutures and open fontanels (soft spots). This is not said to encourage carelessness, but to rob a young mother of unnecessary dread. When a child is able to sit up, the

body may be grasped with outstretched fingers under the arms, but avoid putting the whole strain of lifting, upon the shoulders. *Never lift a child by the arms.*

**Kissing.**—Never kiss a child upon the mouth.

### Toys.

A baby puts everything into its mouth. Let the child have only unpainted, washable toys, without sharp corners, for fear of the eyes. There should be no loose parts which may come off in the mouth, not so much because of the danger from swallowing, but of their getting into the windpipe, which is a much dreaded occurrence.

### THE DAILY ROUTINE.

Nursing or Bottle .....	6 A.M.
Change Diaper (if necessary)	
Put to Bed (If the infant will go to sleep) .....	6.30 A.M.
Orange Juice .....	8 A.M.
Change Diaper and Lay Down .....	8.15 A.M.
Movement .....	9 A.M.
Bath .....	9.15 A.M.
Nursing or Bottle .....	10 A.M.
Nap—If several windows are open, dress as for out of doors, that is, in cold weather. Put on a cap of light wool which covers the ears and use a blanket or woolen sleeping bag. Avoid drafts .....	10.30 A.M.
Clean Bath Room and Nursery .....	10.30 A.M.
Prepare Food for the Next Twenty-four Hours .	11 A.M.
Nursing or Bottle .....	2 P.M.
Nap—Same as at 10.20 A.M. ....	2.20 P.M.
Time for Exercise .....	4.30 P.M.

The young infant takes its exercise by kicking, crying, etc. It is a good plan to place the child occasionally on a bed with a stiff mattress and allow it to kick and toss about.

After the child can walk, or stand with assistance, the "pen," with padded fence, elevated on a platform, about a foot from the floor, is a safe, excellent thing. Such a one can be bought. The usual variety is on a level with the floor. The position of the child when lying in bed should be changed occasionally.

**Exercise for Young Infants.**—This is best done on the bed, with the temperature of the room 70° F. Remove everything, including the diaper. In summer, have on only a thin band; if very hot, they need wear nothing. In winter let them wear loose one-piece night drawers with feet.

**Olive Oil Rubs with Exercise.**—Commencing with the second month it is often advantageous to use daily inunctions of olive oil on the bodies, arms and legs of infants. While doing this, gentle massage or "kneading" of the muscles of their bodies and limbs may be performed, the latter being moved backward and forward against the slight resistance of the infant, for the purpose of strengthening them.

**Exercise for Older Children.**—Use a baby pen, elevated from floor, one foot to one and one-half feet.

In summer, the child may wear a thin cotton shirt; if very hot, nothing. In winter, cotton drawers and shirt, and cotton stockings, if the feet are cold.

**Movement at End of Exercise Period.**—(If the infant has been trained to this).

Sponge Bath .....	5.30 P.M.
Change to Night Clothes .....	5.50 P.M.
Nursing or Bottle .....	6 P.M.
Bed .....	6.20 P.M.
Nursing or Bottle .....	10 P.M.

(Discontinue 10 P.M. bottle at beginning of eleventh month.)

## CHAPTER XIX.

### The Nursery—Airing—Infant's Clothing—Care of Diapers—The Ammoniacal Diaper.

#### QUALIFICATIONS FOR A NURSERY.

**Size.**—Rather large and airy, plenty of windows, preferably facing the south.

**Ventilation.**—Board ventilators, which throw the air upward, are good. The baby must not be in a draft.

**Temperature.**—It is best between 68 and 70 degrees F., in the daytime, and between 55 and 65 degrees F. at night. A good deal depends upon the conditions to which the baby has been trained. At times it may be the same as for an airing. If the baby has a cough or cold, and the cool air irritates, it should be the same as in the day time, but keep the ventilators open.

**Heat.**—The open fire place is ideal. The hot water radiator or the hot air radiator, with the fresh air intake, always open from the outside, with a pan of water set in the furnace for moisture, will answer all requirements. Gas should not be used in the room for heating.

**Light.**—Either shaded electric, gas or oil lamps, will do; a small light being kept on all night.

**Furniture.**—Very simple. No heavy hangings. Rugs, which are tacked down, are much better than carpets.

**Washing.**—The washing of diapers and other articles should never be done in the nursery.

**The Bed.**—The mattress must be firm but comfortable, the pillow thin, preferably none at all. Infants as a rule require less covering in comparison with adults. If the child perspires, the covering is too heavy.

The movable, elevated crib, with high sides of spindles three inches apart are good. This furnishes plenty of air.

An infant should always sleep in its own bed, never in bed with another person.

#### AIRING.

**Indoors.**—When four or five weeks old, even in winter, dress as for the street. Open the windows on the opposite side of the room so that the infant will not be in a draft.

**Length of Time.**—Start with ten minutes, and gradually increase to two or three hours at a time, when the child is not able to go out. A child may be trained to sleep on a protected sleeping porch, or in a room as described under "airing."

**Out of Doors.**—In summer when three or four weeks, in winter between two and three months of age, always in the baby carriage. An airing in a room with the windows open, or on a protected sleeping porch, is preferable to being wheeled through the streets in a baby carriage. When the sun is warmest (in winter), that is, between eleven and three-thirty; in the summer, early in the morning and in the late afternoon. Common-sense rules will be



the guide. It is much safer to give an indoor airing to an infant under nine months, when the weather is slushy, and below freezing. If the baby is accustomed to it, there can be no objections, after four months, to its being taken out in the carriage, if the weather is dry, and only ten or fifteen degrees below freezing. Protect the infant from wind, by means of the carriage top.

A "go-cart" should not be used before the twelfth month; then one as high as possible from the ground.

**Fresh Air Generally.**—While there should be a plentiful supply in the sleeping quarters, one must be guided by common sense in its application on a severe raw day..

## THE INFANT'S CLOTHING.

**The First Band (abdominal).**

**Material and Size of Same.**—Soft flannel, unhemmed, width, six inches; length, twenty inches.

**Putting on the Band.**—Basting is best. The safety pins (small) placed up and down, is the usual way. The band should be only moderately tight.

**Length of Time.**

**The First Band.**—May be discarded at the end of the first month, or whenever the navel is healed. ,

**The Second Band.**—Knitted bands with shoulder straps, should be used as soon as the first bands are discarded. These need not be worn longer than eighteen months.

**The Shirt.**—Knitted, with buttons down the front, part wool, is worn for the first three months. Beyond this age, cotton or linen is best.

**The Skirt (petticoat).**—Flannel (Gertrude style). For summer they should be made of cotton.

**Age to Discard.**—That is, at about two years.

**Slips.**—Soft white material, not longer than twenty-eight inches. These are to be shortened as soon as they interfere with kicking, and other movements.

**The Diaper.**

**The Oblong Way.**—Fold like an ordinary sheet of note paper, then fold down about one-third, the thick part being placed at the back of the infant's buttocks. Bring lower part up and pin with two safety pins on each side. The advantage of this is, that there is less material between the legs, and in front.

**The Usual or Diagonal Way.**—Fold diagonally into four thicknesses, and pin with three safety pins.

**The Rubber Diaper.**—This is objectionable because of being too warm, and likely to irritate the skin wherever it touches. It is not necessary, if a pad (some material of loose texture) is used outside, or inside the diaper. In New Zealand, thoroughly dried moss, such as florists use for packing plants, is used as an absorbent pad. This pad readily absorbs all the urine passed during the night, and prevents the catching of colds. Probably "absorbent" paper pads for use inside the diaper will become practical.

**Care of Diapers.**—Change as soon as wet or soiled. Never use twice until washed. Place, preferably at once, in cold water, wash with mild soap and warm water, boil, and thoroughly rinse, so as to remove all traces of soap, which in combination with the stool, or urine will irritate. Never use starch or blueing. If possible, dry in the open air, iron, and never use damp.

**Ammoniacal Diaper.**—This is caused by the ammonia compounds in the urine, which are liberated by an alkali present in the diaper, such as soap, lye, lime or stool, left there because of insufficient “rinsing;” also in young infants, by milk, in which the fat content is too high. It is almost constantly seen in artificially fed infants.

An eruption or troublesome irritations of the skin in the “diaper region” almost invariably accompanies this condition. In some instances the production of ammonia is due to the action of bacteria upon the urine. Good results have been obtained by rinsing the diapers in some antiseptic solution, such as seven and one-half grain tablet of mercuric chloride dissolved in two quarts of water for the final rinsing (the diaper to be wrung thoroughly and dried before using). It must be remembered that mercuric chloride is a poison and that the usual precautions required for keeping such drugs in the household are essential.

**Stockings.**—Made of cotton, high in winter, and socks in summer, should be worn.

**Clothing Generally.**—Children, both young and older, are usually dressed too warmly. The circulation of

a well infant is good, and they feel the heat more than an adult.

For infants, except during the first three months, and for older children, it is best not to wear anything but a medium, or light-weight cotton underwear. The additional warmth may be secured by outer garments such as cloaks, coats, hats, etc. (See description of waists on page 178.)

**Low Stockings in Cold Weather.**—The climate, generally in the temperate zone, is not adapted for this. While it may do no harm, it certainly will do no good. High cotton stockings furnish protection and are not heating.



PLATE V.—Infant placed within measuring board. Diaper and other clothing should be removed.



## CHAPTER XX.

### SIGNS OF DEVELOPMENT.

#### Average Weights for the First Year.

Age of Child.	Average Weight in Pounds	Age of Child.	Average Weight in Pounds
First 24 hours .....	$7\frac{1}{2}$	End of 5th month .....	$15\frac{1}{2}$
End of 1st week .....	7	End of 6th month .....	$16\frac{1}{2}$
End of 2d week .....	$7\frac{1}{2}$	End of 7th month .....	$17\frac{1}{2}$
End of 3d week .....	$8\frac{1}{2}$	End of 8th month .....	$17\frac{3}{4}$
End of 1st month .....	9	End of 9th month .....	18
Middle of 6th week ...	$9\frac{1}{2}$	End of 10th month ....	$18\frac{1}{2}$
End of 2d month .....	$10\frac{3}{4}$	End of 11th month ...	$19\frac{1}{2}$
End of 3d month .....	$12\frac{1}{2}$	End of 12th month ...	21
End of 4th month ....	$14\frac{3}{4}$		

### Table of Average Weight and Height Measurements From Twelve Months to Five Years.

(From Nutrition Clinics, Boston.)

BOYS			
Age		Height in inches	Weight in pounds
Years	Months		
1	0	*29.5	*21.0
1	2	*30.3	*22.1
1	4	*31.1	*23.3
1	6	*32.0	*24.5
1	8	*32.7	*25.5
1	10	*33.4	*26.4
2	0	*34.0	*27.3
2	2	*34.7	*28.2
2	4	*35.4	*29.1
2	6	*36.0	*30.0
2	8	*36.5	*30.8
2	10	*37.0	*31.6
3	0	*37.5	*32.5
3	2	*38.0	*33.2
3	4	*38.5	*34.0
3	6	*39.0	*34.7
3	8	*39.5	*35.4
3	10	*40.0	*36.1
4	0	*40.5	*36.8
4	0	39.5	37.2
4	2	39.9	37.9
4	4	40.2	38.5
4	6	40.6	39.2
4	8	41.0	39.8
4	10	41.4	40.5

\* Without clothing.



Table of Average Weight and Height Measurements From Twelve Months to Five Years.

*(Continued.)*

GIRLS			
Age		Height in inches	Weight in pounds
Years	Months		
1	0	*29.0	*20.5
1	2	*29.8	*21.7
1	4	*30.6	*22.8
1	6	*31.4	*24.0
1	8	*32.0	*24.8
1	10	*32.7	*25.6
2	0	*33.4	*26.5
2	2	*34.0	*27.3
2	4	*34.6	*28.1
2	6	*35.3	*29.0
2	8	*35.9	*29.8
2	10	*36.5	*30.6
3	0	*37.0	*31.5
3	2	*37.5	*32.1
3	4	*38.0	*32.7
3	6	*38.5	*33.3
3	8	*39.0	*34.0
3	10	*39.5	*34.6
4	0	*40.0	*35.3
4	0	39.7	36.2
4	2	39.7	36.8
4	4	40.0	37.4
4	6	40.4	38.0
4	8	40.7	38.6
4	10	41.0	39.2

\* Without clothing.

**Holding the Head Erect.**—By the third month.

**Sitting Erect.**—By the seventh month.

**Crawling.**—Some infants never crawl before walking.  
At the eighth month crawling is attempted.

**Standing.**—At the ninth month they often stand, holding to the bed or chair for support.

**Walking Alone.**—Usually when thirteen or fourteen months of age. Although a child should not be urged to walk before thirteen or fourteen months, if at that time there is no apparent progress, there is no objection to a "baby walker." In an otherwise normal child, this will assist in developing the muscles of the legs.

**Talking.**—Short single words are spoken during the eleventh and twelfth months. Sentences are spoken towards the end of the second year.

**The "Soft Spots" (Fontanels).**

**Time of Closure.**—Normally by the end of the second month, the posterior has closed. In from eighteen to twenty-two months the anterior has closed.

**Later Development of Boys.**—From twelve to fourteen or fifteen years is the transition period between childhood and youth. Reasonable allowance should be made for a certain amount of nervousness, irritability, or wilfulness, which may be annoying to those who care for them. It is a phase through which they pass.

**Later Development of Girls.**—The beginning of menstruation usually is between twelve and fourteen years of age. It depends upon development, which may occur earlier or later. It is normal when preceded by enlargement of the breasts, the presence

of hair around the external genitals, under the arms, etc. If this is not the case the cause should be sought.

Sickness or anemia, may retard the occurrence of menstruation. Undoubtedly heredity plays a part in the time of its appearance.

**Sex Education.**—The author believes in frankness with both boys and girls. Answer their questions in a manner suitable to their age and disposition. If they do not ask questions it is essential that an effort be made to ascertain how much is already known, and to correct false impressions. This is accomplished more satisfactorily by the parents than by the physician.

Children will acquire this information through some source—it may be in quite a disagreeable manner, and it is far better that it comes to them in the way that we would wish.

**The Infant's Cry.**—Much can be learned from this.

**The Spoiled Cry.**—If the crying ceases as soon as the infant is picked up.

**Whining.**—It is frequently due to a low grade of indigestion.

**A Louder Cry.**—Often indicates hunger or temper.

**A Sharp Cry.**—Pain, which, if accompanied by drawing up of the legs, is probably in the abdomen. If the side of the head or ears are pulled, very likely the infant has earache.

**Sleep.**—The newborn infant will sleep nearly all the time, if getting a sufficient quantity of the proper kind of food. After three months, the infant will be awake normally on an average of between six and seven hours a day.

**Approximate Rate of Pulse and Respiration.**

Age	Pulse	Respiration
One month .....	125 to 135	30 to 35
Six to twelve months .....	120	25 to 30
One to two years .....	110 to 120	25 to 28
Two to six years .....	95 to 110	25
Six to ten years .....	90 to 100	22 to 25
Ten to fourteen years .....	75 to 90	20 to 22

**The Spoiled Child.**—Be sure that a pin is not sticking into the flesh. If everything is all right, and the infant is not sick, crying will not injure it. When the child is old enough to understand, be sure that you are right, then be firm. Do not promise rewards for good behavior.

**Sleep for Older Children.**—Naps of two hours' duration should be taken until between five and six years.

**Training to Use the Vessel:**

**Time to Begin.**—The latter part of the first month.

**Method.**—At the same time each day, that is, before the ten A.M. feeding, the infant should be supported

over a vessel held by the nurse. An air cushion is useful. It will be necessary to insert a glycerine suppository on each occasion for a while until the habit is established. After a time do not insert the suppository until it is seen that the baby will not have a stool without one.

**The Average Daily Amount of Urine Passed.**—For the first week, from one to nine ounces; for the first six months, from eight or nine ounces to a pint; for the latter part of the first year, from nine to eighteen ounces. From one to four years, nine to twenty-four ounces; from four to eight years, fourteen to forty ounces.

**Table Showing Gain in Length For Boys  
and Girls for First Twelve Months.**

(Heubner.)

	Boys	Girls
Birth .....	20.1 in.	19.3 in.
1 month .....	20.7 in.	20.2 in.
2 months .....	21.8 in.	21.6 in.
3 months .....	22.7 in.	22.3 in.
4 months .....	23.7 in.	23.1 in.
5 months .....	24.1 in.	23.7 in.
6 months .....	24.6 in.	24.2 in.
7 months .....	25.4 in.	24.9 in.
8 months .....	25.8 in.	25.3 in.
9 months .....	26.4 in.	25.8 in.
10 months .....	26.7 in.	26.5 in.
11 months .....	27.2 in.	26.8 in.
12 months .....	27.7 in.	27.2 in.

### Head and Chest Measurements from Birth to Five Years.

(From Text Book by Crozer Griffith.)

	Head	Chest
Birth .....	13.0 to 13.8 in.	12.6 to 13.0 in.
6 months .....	16.5 to 17.7 in.	16.1 to 16.5 in.
1 year .....	17.7 to 18.1 in.	17.3 to 18.1 in.
2 years .....	18.5 to 18.9 in.	17.7 to 18.9 in.
3 years .....	19.1 to 19.7 in.	19.7 to 20.1 in.
4 years .....	19.7 to 20.5 in.	20.5 to 20.9 in.
5 years .....	20.5 to 20.8 in.	21.3 to 22.0 in.

### Chest Measurements for Boys and Girls.

(From Text Book by Crozer Griffith.)

	Chest	
	Boys	Girls
6 years .....	23.2 in.	23.0 in.
7 years .....	23.9 in.	23.4 in.
8 years .....	24.5 in.	23.9 in.
9 years .....	25.2 in.	24.5 in.
10 years .....	25.8 in.	24.8 in.
11 years .....	26.5 in.	25.9 in.
12 years .....	27.1 in.	26.9 in.
13 years .....	27.8 in.	28.1 in.
14 years .....	28.9 in.	29.2 in.
15 years .....	30.1 in.	30.6 in.

### Gain In Height for First Five Years.

1 year .....	29.0 in.
2 years .....	33.0 in.
3 years .....	36.6 in.
4 years .....	39.0 in.
5 years .....	41.0 in.



PLATE VI.—Child under measuring rod. Correct posture and without shoes.





### Additional Height and Weight Tables for Girls and Boys.

Prepared by Dr. Thomas D. Wood, for the Child Health Organization of America.

**Age and Weight.**—This is not a reliable standard.

**Height and Weight.**—Much more reliance can be placed upon this.

**Height and Weight for a Given Age.**—This is by far the best standard.

**Method of Weighing and Measuring.**—Weights and measures should be taken without shoes, and while wearing only the usual indoor clothing.

#### About What a Boy Should Gain each Month.

Age 5 to 8 years .....	6 ounces.
Age 8 to 12 years .....	8 ounces.
Age 12 to 14 years .....	12 ounces.

#### About What a Girl Should Gain each Month.

Age 5 to 8 years .....	6 ounces.
Age 8 to 11 years .....	8 ounces.
Age 11 to 14 years .....	12 ounces.

The standard or normal weight for a girl is found where the horizontal column opposite her height crosses the vertical column under her age. Illustration—The standard weight for a girl 50 inches high and 9 years old is 58 pounds.

[illegible]



## CHAPTER XXI.

### HEALTH EDUCATION.

#### "The House the Children Built."

Once upon a time there lived a good and beautiful Fairy named Health, and she was very happy, for all around were flowers and trees and birds and, in the midst of these, her house.

The house was set on fire and burned by the witch "Ignorance."

The Health Fairy was disconsolate, but a little bird called "Education," came to her and said: "Keep up your courage, Fairy, for I will tell you how to build your house anew." It can be done by the hands of children alone. Every time a child learns to eat the right food, two vegetables and a cereal, especially oatmeal, daily, or to eat fruit after each meal, or to brush his teeth after eating, or to have a bowel movement each morning, a brick shall be added to your house, Every time a child learns to sleep in the fresh air, a shingle shall be put upon the roof, and every time a child learns to play and be happy, a colored glass shall be added to the windows." And as the children grew healthy and happy, the bricks were added to the Fairy's house, and shingles were put upon the roof. Lovely colored glass filled up the broken windows and once again there stood among the trees and flowers a house so beautiful that strangers passing by, paused to admire it.

The above quotations, slightly modified by the author, are from "Cho-Cho and the Health Fairy," by Eleanor Glendower Griffeth, and is one of much excellent literature gotten out by the Child Health Organization of America, 156 Fifth Avenue, New York City.

### "The Little Vegetable Men."

One day there came to Cho-Cho, a tiny elf, who loved children, and to the Health Fairy, three queer looking little men. The first had the head of a beet, and his clothes were made of dull green leaves. His shoes and stockings were beet-colored and in his hand he carried a green hat.

The second little man was a white onion, and his clothes were the green of onion tops, and the third little fellow had the face of a carrot, and he too, was all in green.

Cho-Cho and the Health Fairy are told of their trouble. The witch "Ignorance," had set upon them and carried off one of their number. The witch must be punished "for, if she hurts these little men, the children will have no vegetables to eat, and the children must eat vegetables." These quotations are also from the same source.

For any who may not be familiar with modern methods of teaching health, these examples serve to illustrate the attractiveness of presenting, in this manner, to the younger children, the questions of diet and hygiene, which we wish to push home in a personal and graphic way. Various other publications may be obtained from the Child Health Organization of America, such as the "Picture Man," "The Health Alphabet," and for mothers, pamphlets on diet and nutrition.

The National Child Welfare Association, 75 Fifth Avenue, New York, will send upon request, many excellent little pamphlets, such as "The Child Welfare Handbook," "The Baby Book," "Music and Childhood," "Teaching Health Through the Use of Graphic Material," etc.

Much valuable literature may be obtained from the Department of the Interior, Bureau of Education, Washington, D. C., by request, upon almost any subject pertaining to Child Welfare.

When the time has come for the learning of the alphabet and learning to read, children's magazines and other attractive books on health should be provided. They will stimulate the children's pride and teach them to feel that they have a personal part in these things. They will become educated to know the "why" and the "wherefore;" to realize that it is just as disgusting to keep the little white plates in the mouth (the teeth), unclean, as to eat from dirty table dishes which were not washed from the preceding meal.

### PART III.

#### Different Diseases.





## CHAPTER XXII.

### Conditions of the Mouth and Throat.

#### Inflamed Gums—Teething.

**Cause.**—This is usually due to teething.

**Symptoms.**—Redness and swelling over the tooth which is erupting. The infant may give no other evidence of it, or there may be fretfulness, a desire to bite on anything—some temperature, loss of appetite, slight intestinal “upset.” It is well never to blame the teeth for trouble, until everything else is ruled out. It is usually something else, such as an error in feeding, disagreement of the food or some illness.

**Suggestions.**—Usually nothing. Rubbing the gums with tincture of camphor, or paregoric will give relief. Cutting the gums is rarely necessary.

#### STOMATITIS.

##### Varieties.

**Herpetic.**—Other names: Aphthous, cold sore, canker sore, fever blister.

**Appearance.**—At first a blister, which ruptures, leaving a grayish “punched out” ulcer with red edges, on the tongue, gums, inner surface of the cheeks and on the lips (“cold sore” or “fever blister”). The condition is painful, and is the most common variety. When on the lip it is often an accompaniment of a contagious disease, especially pneumonia, bronchitis, cold, and a sub-acute indigestion.

**Catarrhal.**

Cause.—Irritating or hot substances in the mouth.

Appearance and Symptoms.—Redness and swelling of the mucous membrane, with increased flow of saliva and some pain when taking food.

**Thrush.**—Other names—Sprue, parasitic stomatitis.

Cause.—A fungus, the *Saccharomyces albicans*, uncleanliness in the care of nursing infants.

Appearance.—Like flakes of milk. It is wiped off only with difficulty and leaves a bleeding surface.

**Ulcerative.**—Causes—Seen only in children with teeth. Drugs such as mercury, lead and phosphorus, scurvy, uncleanliness and malnutrition may be the causative factors.

Appearance and Condition.—Swelling, ulceration, bleeding of the gums, loose teeth, bad breath, swollen glands, fever, and general illness.

**Gangrenous.**—Other names—Noma, *Cancrum oris*.

Causes.—Seen usually in institutional children and almost always follows a contagious disease.

Appearance and Condition.—A discolored spot on lip or cheek, which spreads rapidly in a black gangrenous mass. It is a grave and frightful condition.

**Suggestions for Stomatitis.**—Any of the causes enumerated, in the varieties mentioned above, must be corrected. In nursing infants, unclean nursing bottles, nipples, hands or anything which comes in contact with the mouth are the most frequent causes. Attention to the general health, the bowels, the use of mouth washes, the bandaging or tying of the hands of infants so that they are unable to

scratch a "cold sore," or "fever blister" on the lips, are important considerations.

### TONSILLITIS.

#### Varieties.

##### With Membrane or Exudate:

**Cause.**—Some organism which is already in the tonsils, or an infection from an outside source.

**Symptoms.**—Both tonsils are usually affected and are quite swollen. An exudate, whitish or yellowish, appears on the tonsils and is almost always confined to them. If seen on the soft palate, it is probably diphtheria. The glands at the side of the neck are enlarged and tender.

Fever, which may be high, is present and often the child seems quite ill.

**Suggestions.**—For infants or young children, there is not much to do except to regulate the bowels, give a sufficient quantity of water to drink and be convinced that it is not diphtheria. A physician should be called for every case of tonsillitis.

**Follicular Tonsillitis.**—Both tonsils are always affected.

**Symptoms.**—Swelling of the tonsils and the presence on them of little yellow spots, due to an exudate or secretion from within.

### QUINSY.

This is an abscess around the tonsils and is quite rare in children. When it occurs, it is in older children.

**Cause.**—Probably infection from the tonsils.

**Symptoms.**—A red angry swelling on the side of the throat which makes it appear "lopsided." The other side may be affected later.

**Suggestions.**—If irrigations are ordered an effective method is the use of a fountain syringe, which is held high (about three feet), filled with a quart of water, with two teaspoonfuls of baking soda in it, every three or four hours. The position of the child is on the side so that the stream of water can be directed back toward the tonsils with force, and run into a pan.

### REMOVAL OF TONSILS AND ADENOIDS.

**Indications for Removal.**—When the health of the child is affected. Often a child who is under weight and has no appetite is greatly benefited; disturbed sleep due to mouth breathing; the “adenoid expression,” that is, keeping the mouth open constantly and breathing as if the nose were “stopped up,” tonsillitis, running ears, signs of rheumatism, signs of heart disease, or as a source of infection, are further indications.

**When to Do It.**—Whenever it is necessary. The breathing of an infant under six months may be so obstructed that the removal of the adenoids at this time may be necessary. Very little anesthetic is required for this. Both tonsils and adenoids may be removed at any time after twelve months, if there is reason for doing so.

### VINCENT'S ANGINA.

**Cause.**—The fusiform bacillus and associated spirillum.

**Symptoms.**—Yellowish exudation on tonsils resembling tonsillitis or diphtheria, with little or no general discomfort. If the patch is removed, a super-

ficial ulceration is seen beneath, accompanied by bleeding.

As well as on the tonsils, an ulceration may be seen on the gums below, or above the teeth. It may not be present elsewhere.

## CHAPTER XXIII.

### Affections of the Gastrointestinal Tract—Affections of the Respiratory Tract.

#### AFFECTIONS OF THE GASTRO- INTESTINAL TRACT.

These are mostly some form of indigestion, due to improper feeding, etc., reference to which has already been made.

**Ulcer of the Stomach.**—This is rare, but sometimes occurs in older children.

#### Congenital Stenosis of the Pylorus.

That is, an overgrowth of the circular muscular fibers surrounding the outlet of the stomach (the pylorus), into the bowel, of sufficient size to prevent or partially prevent the food from leaving the stomach. It is thought to be congenital.

**Time of Occurrence.**—It begins usually, in the second week.

**Symptoms.**—Vomiting, most frequently forceful, and happening the greater number of times immediately after taking food. There is much discomfort and the infant is hungry. Constipation is present, with the "hunger stool." Loss of weight is marked. After a feeding, little "wavy balls" are seen to run across over the distended stomach from left to right (the "peristaltic waves"). A tumor is some-

times felt to the right of the middle line in the upper half of the abdomen. All the evidences of acute malnutrition are present.

**Outlook and Suggestions.**—Cases which are not severe (only partial obstruction), recover with very careful dietetic and medicinal treatment under the care of a physician.

The severe cases (obstruction complete, or almost so), as evidenced by the symptoms, require surgical treatment early.

### Spasm of the Pylorus.

Although the symptoms are quite similar, the food is temporarily prevented from leaving the stomach. It occurs in nervous infants with indigestion. Painstaking and intelligent treatment with woman's milk, diluted skimmed milk mixtures, etc., will effect a cure.

### Intussusception.

**What It Is.**—A folding in of one part of the intestine into another.

**Symptoms.**—Sudden and acute. Vomiting at first of the food from the stomach, later from the intestine, intermittent pain and bloody stools.

**Suggestions.**—Prompt surgical treatment is required if the child's life is to be saved.

### Appendicitis.

**Cause.**—Almost always indigestion followed by an infection. In rare cases, a strain or injury.

**Time.**—Rarely under four or five years, but may occur in infancy.

**Symptoms.**—Vomiting and pain. A young child can rarely locate pain. Tenderness and rigidity on the right side is noticed on pressure. The bowels are usually loose, but constipation may be present.

**Suggestions.**—Stop all food until the physician sees the child, and do not give a cathartic. While most children recover without surgical interference, it is always a risk. The temperature, pulse and general appearance of the child are often misleading. If a diagnosis has been made, it is much safer to operate while the child is in good condition than to do so later, in an emergency, under unfavorable conditions.

### Hernia (Rupture).

The most common form is the umbilical (navel). It is most frequently outgrown. A helpful measure is to enclose the navel between two perpendicular folds of the skin over the abdomen, which are held in position by means of cross strips of adhesive plaster.

This can be done only at intervals, for the adhesive plaster irritates the skin. Later an elastic band is worn during the day. If these measures are unsuccessful, an operation should be performed.

### Intestinal Worms.

These are very uncommon, but many mothers do not think so. The subject is mentioned merely to suggest some precautions. No "worm medicine" should ever be given until the worms have been seen. This is accomplished by having the child use the vessel only, for a week or ten days, and each stool watched.



### Varieties.

**The Round Worm.**—This may be as long as a foot.

**Symptoms.**—The worms are vomited or passed by rectum. Often no other symptoms are present, or there is itching around the rectum.

**The Pin or Thread Worm.**—The name suggests their appearance. They are small and occur in great numbers. Usually there is itching at the rectum.

**Tape Worm.**—The larvæ are ingested in the meat of hog or beef. They develop in the intestine. The symptoms are indefinite, and there may be none until the links (flat and of various lengths), are seen in the stools.

### Constipation After the First Year.

#### Suggestions.

**Diet.**—Fruits, cereals, plenty of vegetables, a moderate amount of meat, coarser bread, such as graham, brown, bran bread, or bran crackers, bran mixed with cereal to make "roughage," will help to relieve the condition.

Yeast as much as the child requires spread on crackers and salted, will often overcome constipation in older children.

**Water.**—See that at least two glasses of water are taken between meals and at bedtime.

**Regularity.**—This is often the trouble. A child should always use the toilet after breakfast, even if the desire for a stool is absent. If persisted in, the result will be satisfactory.

**Exercise.**—There should be a certain amount each morning and afternoon in the open air, depending upon individual conditions.

**Massage.**—If very stubborn, abdominal massage three times a week, is very helpful.

**Drugs.**—Should be avoided as much as possible. They form a habit and are depended upon. Milk of magnesia, given in milk, is the best, if one is necessary, but syrup of figs and cascara will be required at intervals.

**Enemas and Suppositories.**—A soapy enema, or a soap or glycerine suppository at intervals are not as harmful as the constant use of drugs. A child who feels that such a treatment will be given, is not so apt to neglect other measures, such as diet, water, attention to toilet, etc., as he will be, if anticipating only the less disagreeable, routine cathartic. Suppositories (infants glycerine), are better for infants than enemas and drugs.

### Diarrhea

#### Suggestions.

**Diet.**—Stop the “sugary and starchy” foods, that is, cereals, potatoes, and fruits, and, if milk is continued, it should be boiled, or skimmed and boiled.

**Less Exercise.**—This is often as important as attention to the diet.

**Warm Weather.**—Give tepid baths and put on lighter clothes.

**Cathartics.**—Do not give one at once. Wait to determine if nature will not rid itself of the disturbing factor. This is usually the case. Milk of magnesia or a dose of oil may be necessary in stubborn cases.

**Enemas.**—One or two (one quart of tepid water with two level teaspoonfuls of baking soda), will assist in the relief of pain from gas, and in clearing the lower bowel.

## AFFECTIONS OF THE RESPIRATORY TRACT.

### Cold in the Head (Coryza).

**The Infant.**—It is quite common for a certain amount of mucus to be present. This is not necessarily a cold and medicine internally is rarely indicated. Some simple expedient, such as dropping into the nostrils warmed liquid alboline or greasing the nose, is usually sufficient.

### In Older Children.

**Causes.**—It may be a manifestation of improper food, inattention to the bowels and too little water, also infections in the frontal sinus, the antrum, adenoids, enlarged tonsils and badly infected teeth. An infection from some other person, is sometimes the cause. Drafts, too many clothes, oftener than too few, wet clothes, etc., may be the “match to the fire already laid.”

**Suggestions.**—Removal of the causes previously mentioned is very important. In using a handkerchief, teach the child to blow only one nostril at a time.

**“Blowing the Nose.”**—Most children have difficulty in learning to blow their noses. This is often true of those four or five years old, or over. “Blowing out,” may be taught them in the guise of a game or amusement. Place a book, with several small pieces of tissue paper on it, beneath the nostrils, and

touching the upper lip. Encourage them to "blow off" as many pieces of tissue paper at one time as possible.

### Coughs.

**Fresh Air.**—While the author believes in plenty of fresh air, there are times when such directions as these are given to the mother; "have the windows opened much, little or none, and air from another room, according to how much the child coughs." Cases occur, when nothing is necessary but to shut out the cold air which irritates the "bronchial tubes," no medicine being given, or the same continued, which was previously unsuccessful. This also applies to pneumonia, that is, the fresh air treatment is thoroughly approved of, but not when it is cold enough to cause coughing.

**Ointments.**—If these are used, remember that the purpose is not just to grease the skin, but that some ingredient is to be absorbed.

**The Way to Use.**—Open the pores of the skin first with a hot towel until the skin is red, or apply, for two to five minutes, a one part mustard to three or four parts flour, with enough water to make a paste, on muslin or cheesecloth, to the surface of the chest which is to be rubbed. Wash the skin before using the ointment.

**Suggestions Concerning Coughs.**—An elongated uvula, enlarged and infected tonsils or adenoids, bad teeth, infections in the sinuses or antrums, may be prolonging the trouble. Attention to the general health, whether or not anemia is present, a thorough examination of the chest, with an X-ray if neces-

sary, to rule out tuberculous infection in the lungs, is important.

### GENERAL CONSIDERATIONS OF TUBERCULOSIS IN CHILDHOOD.

The subject presents two phases, namely "The Undernourished Child" and "The Child With Active Tuberculosis." These will be discussed separately.

#### The Undernourished Child.

This is much the larger and more important group for it is concerned wholly with preventive medicine. The great majority of these children are *not* tuberculous, but are possibly predisposed, or potentially tuberculous. The tuberculin skin reaction is positive in about thirty-five per cent. With proper care and suitable surroundings the outlook is excellent.

#### Characteristics.

There is usually a poor family history, that is, one or both parents, or some member of the family are already infected with tuberculosis, or there may be no signs of it. Infection in the home is much more serious than a possible hereditary predisposition.

**Bad Hygienic Surroundings.**—This includes the above, together with uncleanness, lack of air and sunlight, overcrowding and improper food.

**Underweight and Subnormal Temperature.**—Evidences of this are always present, but the gain in weight is most gratifying and the temperature assumes a normal curve after a few months of suitable care.

**Bronchial Infections.**—These children have frequent coughs and colds, infected tonsils and adenoids, and enlarged glands in the neck.

**Physical Findings.**—The chest may show signs of bronchial infections, not necessarily tuberculous in character. X-ray plates of the chest show evidences of the same, the interpretation of which always depends upon the history and physical signs of the patient.

### **Suggestions.**

**Home or Sanitarium.**—A home which fulfils the requirements for good health, with no infected members in the household, and in which good food is supplied, is satisfactory. When these conditions are not present, it is absolutely essential to remove the child for a certain period to a sanitarium or preventorium.

**Weighing.**—This is usually done once a week and much may be learned from it.

**Food.**—Good food which includes about one quart of milk, preferably boiled, daily if possible; also fat meats, nuts, eggs, butter, fruits, vegetables and bread, that is, a general diet, is required, and must be furnished at regular intervals.

**Fresh Air.**—As much time as possible should be spent out of doors, and, except in the presence of an acute cough or cold, when cold air is frequently irritating, or in extreme weather, it is advisable to keep completely open the windows in the sleeping quarters.

**Exercise and Rest.**—This type of child with no fever or a subnormal temperature may exercise freely,

but not up to the point of apparent physical fatigue. When able to attend school, in both morning and afternoon sessions, sufficient rest may be obtained there during the day. If school is contraindicated, a period of one hour in the morning and two hours during the afternoon of absolute rest in bed, at the same time each day, together with regularity in going to bed at eight or eight-thirty P.M., should form a part of the daily routine.

**Removal of Physical Defects.**—Correction of bad posture, (discussed elsewhere), of anemia, the removal of infected tonsils, adenoids and bad teeth, the filling of small cavities in the teeth, an inquiry into possible sinus or antrum infection, or anything which may retard progress, should receive appropriate care.

A “tonic,” especially codliver oil, may occasionally be helpful. A “tonic” *is not a substitute* for any of the suggestions previously made.

**Influence of Intercurrent Diseases.**—In this type of child an attack of measles, whooping cough, pneumonia, influenza or “grippe” may have serious consequences. Such children should be kept under observation at intervals following these attacks with special reference to their general physical condition. An X-ray examination of the chest is advisable at intervals.

### Active Tuberculosis.

**Explanation.**—While it is true that any form of *tuberculosis may be present at any age*, there is a type which is much more frequently found in



childhood. It is referred to as "Puerile Tuberculosis," "The Tuberculosis of Childhood" or "Hilus Tuberculosis," in contradistinction to "Adult Tuberculosis."

Anatomically, "hilum" has come to mean the point of entry of the blood vessels and nerves into an organ. In the case of the lung, it is the location at which the bronchial tubes are given off from the trachea or windpipe to enter the lung. Here, normally, is considerable glandular tissue, referred to as the "Thoracic" (thorax or chest) glands, or the "Peribronchial" glands, that is, those around the bronchial tubes. Tuberculosis of this glandular tissue at the "root" of the lung, together with evidences of an inflammation running toward an apex or base, is classified as "Hilus Tuberculosis." This preference for glandular tissue is characteristic of childhood, as opposed to "Adult Tuberculosis," in which the lung itself, frequently starting at the apex, sometimes at the base, may be involved, with cavity formation in any part.

A simple enlargement or infection of the hilus glands in under-nourished children has often been erroneously attributed to tuberculosis.

**Age.**—During the first years of life, before the infant has been able to establish any immunity against the tubercle bacillus, infection is usually overwhelming or "massive" in type. It is not necessarily fatal.

From this period until puberty, that is, about twelve years, the "Hilus Type" is characteristic and, with *proper care*, the outlook is very good.



**Frequency.**—During infancy, it is comparatively rare, and until or after puberty occurs rather infrequently.

### **Tuberculin Tests.**

**Purpose and Significance.**—It is a diagnostic test to discover by means of a skin reaction, usually, the presence or absence of infection in the body by the tubercle bacillus. If a small area of redness, (inflammation), results in twelve to twenty-four hours and lasts several days, the test is said to be *positive*. A positive reaction does *not* mean an active tuberculosis, but simply that infection *has* occurred, except during the first year of life, and in the presence of unquestionable physical signs of tuberculosis. In a large percentage of children such infection takes place, resulting in complete healing of the focus, with a certain amount of acquired immunity. It is evident then, that after the first years of life, a positive reaction has very little significance, but a negative *much*. If no reaction is obtained, except in the most advanced cases, and in the presence of infectious diseases, or in extreme conditions with pronounced wasting, tuberculosis is eliminated.

**What Tuberculin Is.**—Koch's Old Tuberculin is the product of the tubercle bacillus. It contains no living bacilli, and is absolutely harmless in the diagnostic application above described.

**Choice of Methods.**—The Pirquet Test consists of an abrasion of the skin into which the undiluted Old Tuberculin is rubbed, is simply performed, but is less sensitive and reliable.

The intracutaneous test consists of introducing by means of a hypodermic needle an infinitely small amount of the Old Tuberculin (diluted), most superficially under the outermost layer of the skin. It causes no more discomfort than the former and is more sensitive and reliable.

### **Characteristics of Active Tuberculosis.**

**Appearance.**—There is almost always loss of weight.

The superficial veins on the chest wall are appreciably dilated, only, when there is much enlargement of the peribronchial glands. It is rather infrequent.

**Coughs.**—Infants may or may not have a cough. It may be dry and barking, or moist with much mucus, or occasionally, spasmodic, suggesting whooping-cough.

**Fever.**—Fever may be absent, but is usually present and shows certain characteristics, although the normal higher variations of childhood must be remembered.

**Night Sweats.**—Because of the profoundness of sleep during childhood, profuse perspiration at night has less significance than in adults.

**Tubercle Bacilli in the Sputum.**—In tuberculous disease of the lungs, the bacilli are frequently present in the sputum, which infants and young children cough up and swallow.

**Pulse and Respiration.**—Both are increased in frequency. A decline in the pulse rate should accompany a decline in the temperature curve.

### Suggestions.

- a. **Rest.**—These children must be kept in bed *absolutely* until the temperature is normal, and until the physical and X-ray findings permit of such a radical change. A child who walks to and from the bathroom is not staying in bed.
- b. **Food.**—Good nourishing food furnished at regular intervals is essential. (See diet for Tuberculous and Undernourished Children.)
- c. **Fresh Air and Sunlight.**—A room with several windows, constantly open, except in extreme weather and when the air is irritating to the patient, or a sleeping porch, must be supplied. A window pane prevents the filtering through of the beneficent rays of sunlight.
- d. **Climate.**—A change is not necessary except in some cases. If paragraphs a, b, and c, are strictly observed, the climate in which the patient lives is usually as good as any other. Their relative importance is thus expressed; Rest, Food and Air are equally important, and after them, climate.

**The Removal of Physical Defects.**—Correction of such or any defects which will retard the progress of the child is imperative. (See paragraph on same under The Undernourished Child.)

**Physical and X-ray Findings.**—The course of the disease must be followed by frequent and painstaking examinations of the chest by the physician, and compared with stereoscopic X-ray plates of the chest made at suitable intervals.

**Return to Normal Life.**—Walking and exercise should be increased gradually according to the reaction upon the patient.

## CHAPTER XXIV.

### Affections of the Bladder, Kidneys and External Genital Organs.

#### CYSTITIS.

An inflammation of the bladder with large quantities of pus.

**Occurrence.**—Not uncommon, but more common in girls than in boys.

**Symptoms.**—While a few pus cells may be found in all specimens of urine, a great many are abnormal. There is pain when urinating, fever, restlessness, and other symptoms of illness.

**Suggestions.**—A specimen of urine should be saved for the physician to examine. The treatment consists in measures for clearing up the urine.

#### PYELITIS.

Pus in the pelvis of the kidney.

**Occurrence.**—Very common in infants and young children, especially girls.

**Cause.**—Probably an infection from the external genital organs in girls. It is impossible to say that a cystitis is not also present. It often follows diarrhea, or dysentery, where there are many unclean diapers. Another source of infection is through the blood or lymph channels from the intestinal tract.

**Symptoms.**—High temperature and almost nothing to direct one's attention to the real trouble. Vomiting

or loss of appetite may accompany the condition. The urine is loaded with pus and blood.

**Warnings.**—This is a condition which is often overlooked. Every mother should make a practice of saving a specimen of urine for her physician to examine, whenever her child is ill.

A mother or nurse may cooperate more efficiently with the physician if she observes daily the reaction of the urine. Blue litmus paper, touched to a wet diaper, will turn pink if the urine is acid. Pink litmus paper will turn blue in the presence of alkaline urine.

### BRIGHT'S DISEASE (NEPHRITIS).

**Causes.**—Of infectious origin, very frequently from scarlet fever or any contagious disease such as diphtheria, measles, chicken-pox, meningitis or influenza.

Other sources of infection are tonsils, adenoids and bad teeth and poisons carried in from the circulation.

**Suggestions.**—In acute conditions the chances for recovery are more favorable when over three years of age. Continuation in the form of a chronic Bright's after five years is not uncommon.

Such a child should be kept under observation. The urine should be examined occasionally and at all times when ill. The outlook depends upon whether it has become chronic and, if so, upon the general condition of the child and the severity of the lesion as indicated by the amount of urine passed, its specific gravity, the kidney functional test and other factors revealed by uranalyses.

**BED-WETTING.**

**Other Names.**—Incontinence of urine, enuresis.

What to expect of the child, depends upon its training. It is not abnormal until after the third year.

**Causes.**—Lack of control of the nervous system.

**Improper Hygiene.**—Too many bed clothes, or too few bed clothes, or the temperature of the room either too warm or too cold.

**Food and Water.**—Large quantities of meat, eggs or bread, occasionally sugar; sometimes the drinking of too much water during the latter part of the day.

**Reflex Cause.**—Adherent prepuce, that is, the skin covering the end of the penis (called the glans penis) adheres to it and can not be fully retracted. It should be possible to uncover the glans penis entirely.

Phimosis, that is, when the opening in the skin covering the penis is so small that it cannot be retracted over it.

An irritation of the female genital organs; as a symptom of cystitis, pyelitis and some constitutional disease; also intestinal worms.

**Suggestions to Mother or Nurse.**—Decide if any of these causes need correcting. Cut down the supply of water after four thirty P. M., that is, give an almost dry supper and only a taste at bedtime. Notice at what time the child usually "wets," and place him upon the vessel at intervals before this during the night. "Stop" the child while urinating once or twice during the day time, for the purpose of training the will power, and strengthening the sphincter muscle.

**MASTURBATION.**

**Causes.**—Frequently, adherent prepuce or phimosis (see Bed Wetting), in the boy; in the girl, some irritation of the external genital organs.

**Foods.**—Rich and highly seasoned. Too much meat, eggs or bread.

**Urine.**—If too acid, it may be irritating.

**Worms.**—Intestinal worms may be the cause.

**Hygiene.**—Too many bed clothes, hot baths at bedtime, or uncleanness of the external genital organs.

**Age.**—It is not confined to any age. Even infants, male and female, under one year, may develop the habit of rubbing their legs together over the external genitals. (This is spoken of as “false masturbation”).

**Suggestions as to Cure.**—Try to correct the causes outlined, especially, as to the sources of irritation, phimosis, adherent prepuce and uncleanness.

**Thigh Spreaders.**—For the boy or girl, who has developed the habit of rubbing his or her legs together, an apparatus may be applied. It consists of a strap applied around each thigh above the knee, with a rod between, which may be lengthened or shortened. Something which will do as well may be made in the home. It is to be worn, whenever the child is put to bed, until the habit is broken.

**CIRCUMCISION.**

This should be performed on the boy infant during the second week in life. It can then be done without an anesthetic. Its importance is indicated under the subject of Masturbation.

**Toilet Hygiene.**—Children should be admonished not to permit their skin to come in contact with closet seats in public places, such as schools, hotels, etc. If this is neglected a disease may be contracted, especially in girls (specific vaginitis). Unclean hands of those caring for the children and infected toilet articles may also be the cause.



## CHAPTER XXV.

### Some Affections of Nervous Origin.

#### CONVULSIONS.

##### Causes.

If the Child is Under Two Years of Age.—An instability of the nervous system, or a gastrointestinal indigestion (in older children, the same cause will not do this); onset of some contagious disease, a tendency to convulsions. (Spasmophilic diathesis or latent tetany.)

Tetany which produces convulsions in about ninety per cent. of the cases is associated with a disturbed calcium metabolism. There is present a condition of over excitability of the nerve centers, with such manifestations as “breath holding,” crowing sounds on inspiration, contraction of the wrists and fingers, ankles, toes, etc. It is associated with some nutritional disturbances, such as, Rickets, symptoms of which are always present in cases of tetany.

Bright's Disease, (nephritis), that is, “kidney trouble.”

A convulsion may be the first indication of meningitis.

Other causes of convulsions are, hemorrhage into the brain, a clot in one of the blood vessels of the brain (embolism) carried there from elsewhere, coagulation in the blood vessel (thrombosis), and developmental defects, an inflammation of the brain,

(encephalitis), growths in the brain, hydrocephalus (a large amount of serum in the ventricles of the brain, and usually congenital).

**Time of Occurrence.**—Most often between six months and two years. Convulsions occurring after two years, without good cause, at occasional intervals, should make one suspicious of the beginning of epilepsy.

**Suggestions.**—Fortunately, as a rule, convulsions do not last long, and are usually over before the physician arrives. Most frequently there is more than one attack. It is important and comforting to know what to do at once, before the physician comes. Although terrifying, remember that it is rare for a child to die in a convulsion and that it will be over in a minute or two.

**Hot Bath.**—Submerge the child in a tub of hot water. Try the temperature of the water on the inner surface of the wrist. It should be as hot as the child could comfortably stand if awake. Submerge the whole body. Keep ice cold cloths to the head, frequently changed.

**After the Bath.**—When the child relaxes, put him to bed, and cover with a blanket. Place his head upon a pillow, and keep an ice bag or ice cold cloths, frequently changed, on the head.

**Enema.**—Give an enema, as soon as it can be prepared, with a fountain syringe, containing two quarts of soapy water and four teaspoonfuls of baking soda in it. Do not move the child, but, let the expelled water run into the bed, on a rubber sheet if such is at hand.

**Cathartic.**—Give an extra large dose of some cathartic to which the child is accustomed.

### RESTLESSNESS AT NIGHT.

**Causes.**—Too much food or improper food, eating too much at the evening meal, especially of meat or rich desserts, will bring about disturbed sleep because of indigestion. Hunger is a very frequent cause in infancy; less frequently in older children.

Among others, are adenoids or enlarged tonsils, the invasion of some contagious disease or other illness, fever, the subacute pain from disease of some joint or in dentition; an inflammation of the ear (otitis media), bronchitis, cold in the head (coryza), asthma, heart disease, or anemia, or other evidences of a lack of nutrition.

Faulty hygiene or errors as to care, such as a lack of exercise in the open air, or insufficient air in sleeping quarters, too many or too few bed clothes, an unchanged diaper, walks, during the day, beyond the child's endurance; also worry over studies at school, violent exercise or the telling of "ghost" stories shortly before bed time, a light in the sleeping room, the habitual rocking to sleep, and night feedings after six weeks of age, except in illness or under unusual conditions.

**Suggestions.**—Attention to the above causes, and their removal, are the most important considerations. Correcting errors in the diet will most frequently bring about a favorable change; also the removal of enlarged tonsils or adenoids, where necessary, an inquiry into any impending illness or into the

hygiene of the bedroom. The daily routine must not be neglected.

**Mental Age.**—The mistake is often made of placing a child in a grade according to its chronological age, not its mental age. This is manifestly both unfair and cruel, resulting in nervousness and ill health because of vain efforts to “keep up.” Frequently embarrassment under such trying conditions will become indignation and eventually indifference. Then may follow the various methods of “wasting” time, truancy from school and objectionable “pranks.” The child is branded as bad. It is only a manifestation of its inability to cope with a situation utterly beyond it. This may be corrected by classifying the child according to its mental age.

### NIGHT TERRORS.

**Causes.**—While any of those outlined under “Restlessness At Night,” may produce this condition and should therefore be thoroughly investigated, in most cases it is distinctly traceable to errors committed with reference to the nervous system. Children who are urged by their teachers and parents to greater achievements, such as “showing off” or “doing stunts,” and reciting pieces for the benefit of admiring relatives or friends, are laying the foundation for this very trying condition. Those who are able to do these things easily need no urging, but require to be held back.

Often it is found that “ghost” stories have been told just before bed time or violent exercise or other exciting forms of entertainment have been permitted. Some shock or fright which has made

a deep impression, as a runaway horse with attendant accidents, or a visit to a circus, are amply sufficient.

Enquiry into all the reflex causes which may be operating should be instituted. These consist of indigestion from various sources, often too much sugar with meals or too much candy between meals, phimosis, adherent prepuce or clitoris, enlarged tonsils or adenoids, bad teeth or eye strain.

**Symptoms.**—The child awakens suddenly in the night with a sharp cry and in great terror, and sits up in bed. If the attack is slight, he will recognize those about him, saying that he had a bad dream and insists that what he saw in his dream was true and still persists.

If severe those about him are not recognized and the “eyes” or the “cat” or whatever it was, continue to be seen and are a source of great terror. The attacks may last for a few minutes to a half or three quarters of an hour.

**Suggestions.**—At the time, cold cloths to the face or head, gentle efforts to calm and reinsure, comprise all that can be done. Attention to the possible causes previously referred to, and their correction, if possible, is all important.

The companionship of other children in school is to be preferred to education under a governess at home, except where the hours at school will interfere with an amount of exercise out of doors which is necessary for good health.

**CHOREA (ST. VITUS'S DANCE).**

**Cause.**—Its association with tonsillitis, heart disease and articular rheumatism points strongly to an infectious origin. Theories include the finding, more or less constantly, of a definite micro-organism; also the presence of a temporary brain lesion due to the absorption of poisons.

Certainly it follows shock or fright, over work at school, some of the contagious diseases, especially scarlet fever and typhoid fever, and often accompanies malnutrition. Infected tonsils or adenoids, infected teeth, worms and any of the reflex causes mentioned under Night Terrors, may be considered as contributory factors. The most susceptible age is between six and fourteen years.

**Symptoms.**—Usually of a gradual onset and may become acute or chronic. The muscles over which, when normal, there is control, are affected, partially or wholly. These muscles are those especially of the face, arms, fingers, shoulders and legs. The movements consist of jerky, purposeless contractions and relaxations of these muscles, so that a child while walking may involuntarily upset ornaments or other things. There is a tremor of the tongue and of the fingers when extended. These children often have difficulty in swallowing, speak slowly, show irritability or mental dullness.

**Suggestions.**—In this condition absolute coöperation with the physician is essential. Great patience is required and, if acute, the details of treatment are best carried out by a nurse, not by a member of the family. Absolute rest in bed, prolonged hot

baths, good nourishment, freedom from noise and excitement, the absence often from other members of the family, especially the children, the removal of any reflex cause or other condition of disease, are necessary before a cure can be brought about. (See causes of Chorea.)

### HABIT SPASM.

Contractions or twitchings of certain groups of muscles, at first voluntary, but which develop into a fixed habit.

**Causes.**—They occur in nervous children, whose nutrition is deficient. Environment and the unconscious effects of pressure from school work or worry over studies play an important part; heredity less frequently.

**Symptoms.**—The face muscles are most frequently affected in the form of blinking, raising the eyebrows, wrinkling the forehead, drawing downward of one corner of the mouth or other facial grimaces; also shrugging the shoulders or twitching the head or a noise in the throat, as a sigh or a grunt.

**Suggestions.**—It is very important to correct these conditions as early as possible, or their continuance through life may result. The nutrition must be improved, irritating factors in the household corrected, temporary removal from school, or tension lessened by substituting less difficult studies. (Mental Age Classification.)

A mirror will often assist the child in controlling these habit spasms.

**Rotary and Nodding Spasm of the Head.**—This is seen in infants between three or four and eighteen



months of age, and is thought to be due to strained positions of the head in order to see objects in a poorly lighted room. The room should be kept entirely dark or a better light used. The condition will disappear without further assistance.

### THE BACKWARD CHILD.

**Cause.**—At times a congenital deficiency. Often the child is suffering from a lack of vitamins in its food. Fruits, cereals and vegetables, are probably needed.

If the child cannot take solid food, the cereals may be given in the form of gruels and vegetable juices in the bottle. The vegetables may be cooked, strained and mixed with the milk.

It requires great patience and perseverance to feed these children.

**Delayed Mental Development.**—An infant may show all the signs of normal mental and physical growth for the first few months, when it becomes apparent that the mental development does not continue to parallel the physical. Occasionally there is an arrest of both mental and physical growth.

In an infant who is not congenitally deficient, that is, is normal for the first few months of life, or in whom this condition is not a sequence of some acute illness, as meningitis, the outlook is very encouraging.

After a few months, the development, both mental and physical, will proceed in a normal manner. The child, although backward for a time, will eventually show no signs of its former retardation.



tion. Often there is a history of several attacks of acute illnesses.

**Mentally Deficient Children.**—In cases of mental deficiency it does not seem wise to classify a child permanently by means only, of tests or “stunts”, applied as a routine. While this is a valuable contribution, it should form only a part of a general scheme of observation extending, where possible, over a period of weeks or months. Undoubtedly this is not necessary in all cases. Following the initial tests, an effort should be made to determine, by means of a thorough physical and laboratory examination, whether or not, some condition, amenable to treatment, is responsible, partially or wholly for the mental retardation, and, if present, to remove it. Observations, concerning the reaction of the child to daily life are recorded during this period until a definite classification is made. Such a work is at present being undertaken in connection with one of the hospitals in Cincinnati.

**Delay in Talking.**—When not due to a congenital deficiency accompanied by signs of mental dullness or other indications of developmental errors, or, when not following an acute illness, which has resulted in other evidences of brain disturbance, it may be the result of a simple retardation of that portion of the brain which governs the speech centers. If such a condition is present the difficulty may be expected to eventually disappear. Special training is sometimes required at a later date.

A child who is deaf will not talk. Deafness may follow some acute illness. Other causes of difficulty in articulation are deformities of the mouth

or palate and excessively large tonsils and adenoid growths.

An aphasia, stuttering or stammering, may result temporarily from a fright or acute illness. Stuttering may appear in a highly nervous child. Freedom from excitement, and occasionally, special training are desirable.

## CHAPTER XXVI.

### Recurrent Vomiting (Periodic Vomiting)—Acidosis. Anesthesia.

#### RECURRENT VOMITING.

**Occurrence.**—Begins often in the second or third year of life.

**Cause.**—It is not well understood. Acetone bodies occur in the urine. Recurrent vomiting is found in high strung children of nervous heredity, usually between two and four years. It can not be traced to any errors in the child's diet. There is frequently a history of a children's party, or, some unusual excitement just preceding the attack.

**Symptoms.**—Slight fever, vomiting every hour, or oftener, without apparent cause; exhaustion. It lasts from one to four days, and the attacks occur irregularly every two or three months.

**Suggestions for Intervals Between Attacks, Diet, etc.**—Skimmed milk should be used, also cereals, with some sugar and skimmed milk. Breads, the same as in the diet lists, and any other foods which agree, including fruits. The omission of eggs from the diet is often desirable until it is demonstrated that their use is unattended with harm.

Divide each day between their milk, food and water, one to one and one half level teaspoonfuls of Squibbs' sodium bicarbonate (baking soda).

Give a dose of milk of magnesia on alternate nights.

**Bodily Mechanics.**—Bad posture is a predisposing cause of recurrent vomiting. Correct “round shoulders,” or bad posture with daily exercises, at first under the supervision of a nurse trained in this sort of gymnastic work. Shoulder braces have not been found to be of any value.

**Waists—(The “Ferris”).**—Such waists, hung from the shoulders to which are attached the drawers, skirts, trousers, or elastic stocking supporters, cause round shoulders, or make round shoulders worse. These articles may be suspended from a firm band or strap, (“webbing” two inches wide) worn as a belt around the waist, or from a rather firm corset waist, (when the abdomen is prominent), supported on the hips.

**Suggestions for the Attack.**—Food should not be attempted until several hours after the vomiting has ceased. It is the author’s custom to give two or three ounces of soda water, (Squibbs’ sodium bicarbonate) in the proportion of one third of a teaspoonful to the glass of water, every hour, whether it is vomited or not. About three ounces of the solution should be given by rectum every three to four hours when the child vomits, so that it will receive and retain an alkaline fluid. (See Rectal Feeding.) Frequently glucose solution (sugar) is also given by rectum.

### ACIDOSIS.

**Explanation.**—Alkalies and acids are constantly manufactured in the system. The regulating mechanism strives to keep a reserve of alkalies in excess of the acids, and normally is able to do so.

When something "goes wrong," and there is an over production or retention of acids in the system, this alkali reserve is called upon in an attempt to neutralize these. It is then said that an acidosis is present.

There are various theories which attempt to explain this condition, but the true cause is not known.

**Seriousness.**—When the mechanism which regulates the acids and alkalies becomes seriously involved, a very grave condition results, that is, a true acidosis. The poisons, which normally are eliminated, are retained in the system and attack the respiration. Hyperpnea, that is, exaggerated breathing, is the only characteristic symptom. Manifestations referable to the heart, kidneys, stomach, etc., are also present. Fortunately a serious acidosis is comparatively rare. Curative measures consist in the giving at once of fluids, sugar and alkalies by mouth. When unable to retain them, because of the vomiting, they are administered by rectum—the sugar in the form of glucose or dextrose solution. If the condition is more serious, injections under the skin, into a vein, or, into the peritoneal (abdominal) cavity are performed.

## PREPARATIONS FOR ANESTHESIA.

**Reasons.**—Acetone bodies are found in the urine after anesthesia with chloroform or ether. With this in mind, all children should be alkalized for about ten days before and after an operation.

**Method.**—Observe the rules in Recurrent Vomiting. This includes directions for food, and the adminis-

tration of bicarbonate of soda. Several specimens of urine should be examined by the physician—the operation not being performed until the urine is alkaline. Bicarbonate of soda in sufficient amounts to bring about this result should be given. The urine must be kept alkaline for ten days following the operation by the same means.

**“Epidemic Acidosis.”**—This does not occur. It may however, be present in children who are having infections of the nose, throat or tonsils, or some intestinal disorder, due to the influenza bacillus or some organism which is occurring in epidemic form.

## CHAPTER XXVII.

### NUTRITIONAL DISTURBANCES.

**Explanation.**—A serious diarrhea which was thought to signify an “intestinal indigestion,” for the relief of which starvation, cathartics and other drugs were considered quite adequate, is a conception of the past. With a better knowledge now, of the changes which are taking place in our bodies, the intestinal condition is looked upon as the result of some grave interference with the normal state of the organism.

While bad hygienic surroundings predispose to these conditions, they may be due to overfeeding relative amounts of the food elements. Breast milk is rarely responsible, but improper artificial feeding, especially the injudicious use of proprietary foods, is most constantly the cause.

**Mild conditions.**

#### Constipation.

**Other Names**—Malnutrition, Weight Disturbance, Fat Constipation.

**Cause.**—An intolerance for fat which has been acquired by giving the infant, over a long period, more than it can stand, that is, of milk which is too rich.

**Symptoms.**—At first there is an abnormal gain in weight, followed by a stationary weight, then by a loss, and when larger quantities of food are given, the loss is further increased.

Other symptoms are those of indigestion, constipation (the fat stool), which does not stick to the diaper, or a soft stool full of fat curds.

Later, pallor and a loss of the normal firmness of the skin and muscles, are present.

**Suggestions.**—The food, rich in fat (cream), must be stopped. Albumen milk, skimmed milk, buttermilk, etc., that is, food which has little fat, and properly diluted, must be used in its place.

A return to the normal will take a long time, and whole milk will be reached only with great care. The nutrition of the child is conserved, by the careful additions of sugar (dextri-maltose).

Preparations of "albumin" milk which are easily prepared in the home, are now readily procurable.

### Diarrhea.

**Other Names**—Dyspepsia, Fat Diarrhea,  
Sugar Diarrhea.

**Causes.**—Overfeeding, especially of sugar. Many of these children have been taking condensed milk. In others it is due to excessive fats.

**Symptoms.**—Vomiting and diarrhea. The infant is able to retain nothing in its stomach. There are many stools, foamy, full of fat curds and mucus, and accompanied by explosions of gas. The child appears to be very ill, pale and the eyeballs are sunken.

**Suggestions.**—These are the same as for Fat Constipation.



**Grave Conditions.****Malnutrition.**

**Other Names**—Marasmus, Decomposition, Atrophy, Athrepsia.

**Causes**.—Bad hygienic surroundings, improper food, especially too much sugar (condensed milk), and the prolonged feeding of cereal waters, because of the fear of further aggravating the gastrointestinal symptoms.

It is often seen in premature infants.

A deficiency in vitamins.

**Symptoms**.—Extreme emaciation and loss of weight. Great hunger, which cannot be satisfied because of vomiting. The hunger stool is often present.

**Suggestions**.—A change to better surroundings. Woman's milk is the best food, fed either from the breast, or if too weak, with a medicine dropper, or a Breck feeder. (Suggestions under the chapter for Premature Infants, for the amounts, intervals, etc.) If woman's milk is not obtainable, skimmed milk, albumin milk or buttermilk are used, properly diluted. When the infant is able to retain its food, some form of malt sugar is usually added, gradually and in small quantities.

**SEVERE NUTRITIONAL DISTURBANCES.**

**Other Names**—Summer Diarrhea, Intoxication, Cholera Infantum.

**Causes**.—Some previous intestinal trouble, as a sugar diarrhea, or other nutritional disturbance, such as malnutrition or marasmus.

Heat, excess of sugar in the food and decomposition of the food in the intestines.

**Symptoms.**—These are due to excessive loss of water. The absorption of the toxins or poisons from the intestines, may play a part. The temperature is high. Vomiting is often severe. The stools are usually large, frequent and watery, green in color, and full of mucus.

There is great loss of weight, and anuria, (total suppression of urine).

The expiration and inspiration are exaggerated, (air hunger). A severe acidosis is present.

**Suggestions.**—All food should be stopped for a time, but water must be supplied by some means. Then albumin milk, skim milk or buttermilk, properly diluted, and in small quantities must be tried. Later, dextri-maltose, in small amounts is added, and very gradually increased.

### Acute Inanition.

**Cause—Underfeeding.**—This is present in breast fed and artificially fed infants who are lacking in proper nourishment, and are too weak to make their wants known in the usual way, by crying, showing evidence of hunger, etc. Their lowered vitality may cause the vomiting of the little food they take, which results in the giving of cereals with almost no food value, for a long period, and further increasing their starvation. *They need food*, but it must be the right kind and given intelligently.

### Dysentery.

**Other Names.**—Enteritis—Ileocolitis.

**Cause.**—It is caused by the *Bacillus dysenteriae* of Shiga and allied organisms.

**Symptoms.**—They are similar to those seen in the Severe Nutritional Disturbances, Summer Diarrhea, Intoxication or Cholera Infantum, but, in addition, showing a real intestinal inflammation, as evidenced by the presence of pus and blood in the stool.

## OTHER DISTURBANCES OF NUTRITION.

### Scurvy.

**Causes.**—Some of the proprietary or patent foods, boiled or pasteurized milk, when not accompanied by orange juice, other fruit juices, tomato juice, or other vegetables, moderately cooked, (one half hour), are often the cause. It is regarded as being due to a lack or absence of vitamins or anti scorbutic substances in the diet. It appears usually between the sixth and fifteenth months and almost always in the artificially fed infant. It is frequently associated with Rickets.

**Symptoms.**—It is a hemorrhagic disease. There is bleeding into the various organs, stomach, intestines and gums, when the infant has teeth, and under the outer covering of the bones (the periosteum), especially around the joints and down the front of the lower legs.

The pain is intense and the infant cannot bear to be touched. This condition may be mistaken for acute rheumatism.

**Suggestions.**—These consist in the giving of food which will furnish vitamins, namely, orange juice, two tablespoonfuls at least daily, or other fruit, or vegetables cooked a half hour, or the tomato, canned or fresh, in the same amount, and a well balanced diet.

Fresh milk, instead of the food which the infant was taking, must be substituted.

### Rickets.

A disturbance of nutrition occurring usually in the artificially fed infant.

**Causes.**—Improper food, that is, one which is lacking in vitamins, such as Fat Soluble A. or *some other*, which is present in small quantities in butter fat, but in large quantities in codliver oil; the prolonged use of Proprietary Foods.

A disturbed calcium-phosphate balance is present.

The deprivation of the direct rays of the *sunlight* has a marked influence upon the production of Rickets. The great majority of children develop this disease during the winter months, especially from January to June. Bad hygienic conditions favor its appearance.

The Negro and Italian races are especially susceptible.

While all of these causes are intimately associated with the production of Rickets, the relative importance of any one is still a matter of dispute.

**Symptoms.**—Sweating of the head, restlessness, constipation, and the bony deformities. These con-

sist of the prominent forehead, or box shaped head, swellings, not painful, at the ends of the long bones of the legs and arms, and on the ribs. The deformities occur because of the lack of true bony tissue (deficiency in the lime salts), due to the bearing of their weight on the "soft bones," and probably to muscular contractions, etc.

**Suggestions.**—The diet should be immediately changed. If the infant has been receiving some form of Proprietary Food, it should be discontinued and a properly supervised milk formula substituted, together with other foods *suitably cooked*.

It is absolutely essential to improve the hygienic surroundings. As much *direct sunlight* as possible, not that which filters through a window pane, should be provided.

Codliver oil in the purest possible form must be given in all cases. The *daily total amount* for this purpose need not be more than from one to two level teaspoonfuls, divided into three small doses. The reliability of the preparation is very important, as many commercial products are almost worthless. A pure, cold, pressed codliver oil should be purchased.

Rickets should not be permitted to develop in either a breast fed or an artificially fed infant. It is a preventable disease. The early use of codliver oil, fresh air, sunlight and proper food are the essential preventive measures.

## Contagious Diseases.

### CHAPTER XXVIII.

#### Introduction and General Discussion.

The word "contagious" comes from a Latin word meaning "to touch or come in contact with." This is the way to think of a contagious disease, that is, it is one which is transmitted by contact. To come in contact with, does not mean that one must always touch with the hands, but it is a broader term.

#### Means of Infection.

1. **Through the Air.**—Only in the immediate vicinity of the patient. Germs are not blown for long distances as we formerly thought.
2. **Infection from Dust.**—This is usually not dangerous except for the tubercle bacillus. Very few organisms live for any length of time after exposure to the air and sunlight.
3. **Insects and Animals.**—These may become contaminated from the discharges of the patient and carry infection to others.
4. **Droplet Infection.**—This is the most important and the means by which at least ninety per cent. of all contagious diseases are transmitted.

**Definition of Droplet Infection.**—Infection from particles of mucus in the air, within a few feet of the

patient, which are present through talking, laughing, coughing, sneezing and crying.

**Methods of Giving and Taking.**—The contagions then, in most all cases, are spread by means of the nose and throat, and acquired, by inhaling through the nose and throat.

**Exceptions.**—Discharges from the ears; and infections from stools, as in typhoid fever.

Under contact infection, must also be included the contamination of clothing, hands, face, and hair, also dishes, bed pans, thermometers, and everything, which has come in contact with the discharges from the patient. The skin of the patient can infect others only because it has become contaminated in the same way. Peeling of the skin (desquamation) is not contagious.

**Precautions Against Spread.**—The importance of wearing gowns, the free use of the nail brush and soap and water after touching a patient, the use of mild, alkaline solutions for spraying the nose, and gargling the throat after coming in contact with the patient, cannot be too strongly emphasized. Sterilizing solutions cannot be depended upon. The best means of cleaning a thermometer is to soap it, then clean thoroughly under running water. If alcohol is used afterward, it is only to remove the soap. The use of chloride of lime, or something similar, for the toilet is obviously sensible, as it helps to disinfect the sewerage.

**Disinfections.**—Fumigation, has been discarded by Boards of Health.

**Methods.**—The removal of infections depends upon thorough cleanliness. This includes the washing

with soap and water, of beds, floors, and woodwork, the cleaning of walls, or anything which the patient may have touched. Boil the articles which can be boiled, and anything which cannot be cleaned in the above manner, must be destroyed. Expose everything to the air and sunlight for a day or two.

**Period of Incubation of a Contagious Disease.**

This is the time which elapses from the date of exposure to the appearance of any symptom.

**Period of Invasion.**

This is the period from the first symptom, to the appearance of the rash.





PLATE VII.—Position of child for examination of ears.



## CHAPTER XXIX.

### Measles—German Measles—Scarlet Fever— Diphtheria—Simple Croup.

#### MEASLES.

**Definition.**—A contagious disease with a catarrhal condition of the eyes, nose, throat and bronchial tubes, accompanied by a “blotchy eruption on the face and body.”

**Cause.**—Not known. Nursing infants under six months, not susceptible, but more so than to scarlet fever. All others are susceptible.

**Period of Incubation.**—Is ten or eleven days.

**Symptoms.**

**Invasion.**—The period is usually about four days; less frequently from two to six days. There is cold in the head, inflamed eyes, sneezing, cough which resists treatment, and fever.

Koplik Spots—grayish spots, the size of grains of pepper, over the reddened mucous membrane of the inner surface of the cheeks opposite the molars, are present, and are the true signs of measles.

**Acute Stage.**—A blotchy eruption which begins on the face, then covers the body and disappears in about six days. The other symptoms are an exaggeration of those in the invasion period. A “chapped skin” peeling and a brownish discoloration usually follows the disappearance of the rash.

**Period of Contagion.**—As long as there are catarrhal symptoms (from three, possibly four, days before the appearance of the rash until five or fourteen days after its appearance). A running ear lengthens the quarantine period.

**Complications.**—Broncho-pneumonia is the most to be feared. Others are, running ears, mastoid disease, abscess in the pleural cavity (empyema) following pneumonia.

**Precautions—Bed.**—It is usually best, especially in winter, to keep the child in bed until the cough is gone. The amount of air in the room depends upon its effect upon the cough.

**Light.**—If the eyes are much inflamed, or the child complains, the room should be darkened. Otherwise it is not necessary.

**Convalescent Serum.**—The serum from patients convalescing from measles has been administered to exposed children with good results by conferring a temporary immunity upon them, or by greatly lessening the severity of an attack. Such cases may have only a slight rash, with no fever or catarrhal symptoms.

**Immunity.**—One attack usually confers immunity, but a second attack may occur.

### GERMAN MEASLES.

**Definition.**—When characteristic, a mild contagious disease with a rash resembling “flea bites,” the size of pinheads, on the face and body, and usually with few general symptoms.

**Cause and Period of Incubation.**—The former is unknown. The latter is about two weeks.

**Invasion Period.**—Frequently there are no symptoms, or they may be like those of measles. Koplik spots are not present.

**Acute Stage.**—A rash which lasts, on an average, of two days, and sometimes resembles measles and when irregular, scarlet fever. Usually, there is cough, sneezing, a running nose, etc., fever usually none, or not apt to be high. Severe cases sometimes occur.

**Period of Contagion.**—Until the catarrhal symptoms have left, usually a week to ten days.

**Immunity.**—One attack usually confers immunity, but a second attack may occur.

### SCARLET FEVER.

**Definition.**—A contagious disease with a rash on the body, scarlet in color, “looking and feeling like goose flesh over a reddened surface,” accompanied by tonsillitis and fever.

**Cause.**—Not known. Most susceptible period, three to six years. Nursing infants under six months, not susceptible, even less so than to measles.

**Period of Incubation.**—Usually about three or four days.

**Period of Invasion and Its Symptoms.**—Three to thirty-six hours. There is sore throat, vomiting in most cases, and fever.

**Acute Stage.**—The rash appears first upon the chest, then spreads over the body and disappears in six or seven days. It is not on the face, but there may be there, a little rash resembling “pimples.” The skin on the nose and around the mouth looks pale;

the cheeks are flushed. The coating on the tongue disappears in about four days and it looks rough, (enlarged papillæ). A "wavy" peeling starts on the abdomen about the sixth day. It leaves the feet last, and is not at any time contagious. Contagion is spread by means of discharges from the throat, nose and ears. The fever is moderately high and may be said to decline as the rash leaves, unless there is a complication.

**Period of Contagion.**—It is at least four to five weeks.

**Complications.**—Acute Bright's (nephritis), running ears, mastoid disease, and a heart condition.

**Precautions—"Bed, Milk and Water."**

It is the consensus of opinion that it is safer to keep the patient in bed for at least three weeks. Kidney complications are apt to appear during early convalescence and not during the acute stage.

**Milk and Water.**—Milk forms the basis of the diet, but fruits, cereals, vegetables, ice cream and bread are included. The author believes in a late return to meat and eggs. Water should be given regularly. At least two uranalyses should be made each week for the first four weeks. Two additional uranalyses are required before dismissal; a greater number if necessary.

**Convalescent Serum.**—The serum from patients convalescing from scarlet fever has been used in the treatment of severe forms of the disease. More recently it has been given as a preventive where children have been exposed. It is difficult to judge of its efficiency because not every one is susceptible.



PLATE VIII.—One position of child for examination of throat.





**Immunity.**—One attack usually confers immunity, but a second attack may occur.

### DIPHTHERIA.

**Definition.**—An acute contagious disease, caused by the diphtheria bacillus which forms a membrane, together with other signs of inflammation on the mucous membrane, usually of the nose, throat, larynx and trachea, ("windpipe"), from which poisons are absorbed into the system.

**Period of Incubation.**—This is about one to three days.

**Period of Contagion.**—Until the patient is negative to culture.

### Symptoms.

**When Tonsillar Diphtheria.**—Reddened throat, or tonsils, a patch or membrane on the tonsils, which shows a tendency to spread to the soft palate or uvula, fever, sore throat and general disability.

**When in the Nose.**—A discharge which irritates the skin below the nostrils. At times a membrane may be seen.

**When in the Larynx.**—Fever, hoarse voice, and noisy difficult breathing, which is continuous day and night and grows worse.

**Complications.**—The heart is the most to be dreaded. The kidneys, as in any infection, may be affected. The most common paralysis, is that of the soft palate, but it is not serious. Others may occur. Difficulty is noticed in pronouncing certain consonants as in "plum pudding."

**Precautions.**—The specific treatment is diphtheria anti-toxin. Probably no child should die from diph-

theria, if the antitoxin is given *early and in sufficiently large doses*. Five thousand units on the first day, is better than twenty-five thousand units on the fourth day. The longer the administration of antitoxin is deferred, the larger the dose required.

**Passive Immunity.**—While diphtheria antitoxin will cure an attack, it immunizes the patient for about two weeks or less. This is called passive immunity.

**Active Immunity.**—There is a method which promises to confer a life-long immunity when practiced. It is brought about by means of injections of toxin-antitoxin and should be performed when under eighteen months of age.

**Susceptibility and the Schick Test.**—All children are not susceptible to diphtheria, but the period of greatest danger is between six months and six years. Earlier than this, susceptibility is unusual. It commences between six and nine months. If the mother is susceptible, the infant has no immunity, even under six months.

The Schick test determines by a skin reaction the presence or absence of natural immunity.

**Immunity.**—One attack does not confer immunity.

### SIMPLE CROUP (CATARRHAL).

The usual history is, that the child went to bed feeling well. During the night, the child awakened with a strangling sensation, a hoarse, barking cough, and difficult breathing. It may seem as bad while it lasts, and be accompanied by as much distress, as in diphtheria of the larynx. Fever as a rule is absent.

The attack is usually over in about an hour, or often less. A child who goes to bed feeling perfectly well, and suddenly awakens with an attack such as described above, has not diphtheria.

**Suggestions for Simple Croup.**—Close the windows, but do not have the room suffocating. Air from another room. Too warm air is as bad as too cold. Give one teaspoonful of syrup of ipecac, regardless of age, every five minutes for three doses or more if necessary, until vomiting occurs. This usually relieves.

Steam inhalations with compound tincture of benzoin for the child to breath, and occasionally cold cloths to the front of the throat will assist in relieving.

Rule out the possibility of the child's having inhaled a foreign body.

## CHAPTER XXX.

### Chicken-pox—Smallpox—Vaccination—Mumps.

#### CHICKEN-POX.

**Definition.**—A mild contagious disease, with a rash, consisting of, lesions like “flea bites,” pearly vesicles, pustules and crusts occurring all at the same time, and with few, if any, general symptoms.

**Cause and Period of Incubation.**—The former is unknown. The latter is about seventeen days.

**Symptoms—Usually None or Slight.**—The rash is often the first indication of sickness. It is described in the definition, and is more pronounced upon the body than upon the face. The attack, however may be severe.

**Complications.**—The author has seen cystitis often accompany it.

**Period of Contagion.**—Usually about ten days.

**Suggestions.**

**Convalescent Serum and Vaccination.**—Inoculation of convalescent serum or the serum from fresh chicken-pox vesicles has, in either case, been effective as a preventive in a large majority of children.

**Immunity.**—One attack confers immunity.

#### SMALLPOX.

**Definition.**—An acute contagious disease, with an eruption of papules (or “pimples”), vesicles, and

pustules, occurring in three distinct stages, with fever and other general symptoms of discomfort.

**Cause.**—The cause is not known.

**Period of Incubation.**—Ten to twelve days (sometimes longer).

**Period of Invasion and Quarantine Period.**—Two to three days. Isolate for about seventeen days.

**Susceptibility.**—There is very little because of vaccination.

**Symptoms During the Invasion.**—Headache, vomiting, constipation, backache, (very important, when present), and fever.

**Symptoms of the Acute Stage.**—The eruption commences on the forehead, temples and wrists, and spreads over the whole body. It is more pronounced on the face, (exposed surfaces), than elsewhere. It starts as "flea bites," which quickly become papules and feel hard. On the third day the vesicles, also very hard and full, begin to appear on the papules. By the fourth day all are vesicles, resembling "split peas." About the sixth day, the vesicles become pustules. There is great swelling and inflammation around the lesions, and the face becomes unrecognizable. Drying up of the eruption begins about the tenth or the eleventh day. The temperature which is high, drops almost to normal, before the pustular stage and then becomes high again. There is great general discomfort and some sore throat. Although it is an unpleasant disease it is almost never fatal in itself, due to the prevalence of vaccination which has made it mild.

**Immunity.**—One attack confers immunity.

### VACCINATION.

**Time to do It.**—Before going to school or at any time, including infancy, when exposure is thought to be likely.

**Frequency.**—Protection lasts about five years. If exposed or likely to be, after this time revaccination should be performed. A “take” is more satisfactory than “no take,” for then we know that protection has been established. It should be tried at least three or four times.

**Location.**—On the outer surface of the arm, (the left if right handed), about two inches below the shoulder, and on the thigh, above the knee, and somewhat to the side. The latter is preferable for girls.

#### Methods.

1. The old method is the scarification with which all are familiar. It should not be used as there is more danger of infection when done in this manner.
2. Two or three scratches with a needle, one inch apart, and three-fourths of an inch long. The virus is rubbed in.
3. Modified puncture as used by the author. A small drop of virus is placed on the skin through which a semipuncture is made in the manner of the tuberculin test. This results in a clean small “take.”
4. Injection of the virus under the skin, by means of a hypodermic needle.

**Dry Dressings.**—They are preferred, unless the dressing sticks to the wound. In this case an ointment

is necessary. Dressings are not used unless it is seen that the clothing is irritating.

**The Vaccination Shield.**—These are not to be used, as they cause congestion, are kept clean with difficulty, and may retard healing.

### MUMPS.

Usually a slightly contagious disease with swelling of one or both parotid glands and few general symptoms. Some epidemics are highly contagious and all who are exposed contract the disease.

**Cause and Susceptibility.**—The former is unknown.

The greatest susceptibility is between four and fourteen years. Infants are rarely affected.

**Period of Incubation.**—Seventeen to twenty days.

**Length of Period of Contagion.**—Keep away from other children for at least one week after the swelling has disappeared.

**Symptoms.**—Swelling of the gland which extends from behind the ear, well over the cheek. Pain on swallowing, especially acid substances; dry mouth; slight fever. One gland swells at a time. This is followed usually by the other in a day or two. The enlargement of the second gland may be delayed from a few days to four or five weeks.

**Complications.**—In boys over twelve years of age an inflammation of the testicle may occur but it is not common.

In girls, rarely, an inflammation of the ovaries breast and external genitals is a complication.

Occasionally appendicitis is a complication of mumps. Meningitis as a complication is rare.

**Immunity.**—One attack confers immunity.



## CHAPTER XXXI.

### Whooping Cough—Infantile Paralysis—Cerebrospinal Meningitis—Typhoid Fever.

#### WHOOPIING COUGH.

**Definition.**—A highly contagious disease characterized by a spasmodic or paroxysmal cough, frequently ending in a crowing inspiration or “whoop,” and often accompanied by vomiting.

**Cause.**—Probably a bacillus constantly found in the bronchial exudate.

**Methods of Communication and Period of Incubation.**—By droplet infection. The cough begins about one week after exposure.

**Length of Contagious Period.**—About five to eight weeks. It may be much less if the cough has gone.

#### Symptoms.

**Catarrhal Stage.**—The cough is worse at night and toward morning, and resists ordinary medication. There is sneezing and the eyes are inflamed. This stage lasts from one to two weeks.

**Paroxysmal Stage.**—The cough has developed into paroxysms, occurring at intervals. The child knows when a paroxysm is about to come on and runs to its mother or nurse for support.

**Description of Attack.**—A series of explosive coughs commence and continue until there is no breath left, when an inspiration is taken, at which time the “whoop” occurs, if it does occur. This is repeated until mucus is dislodged, and the paroxysm



is over. With the bringing up of the mucus, vomiting is likely to take place. During the attack the child's face is quite red, the eyes bulge, and the tongue, "gutter shaped," is protruded.

**The Whoop.**—This is not necessarily present. About one third of the cases do not have it.

**Vomiting.**—This, when present consistently, with the other symptoms, is of as much significance in deciding, whether or not the child has whooping cough, as the cough itself.

**Complications.**—Pneumonia is very serious.

**Results.**—Unless great care is exercised, it may lay the foundation for future trouble. (The heart and lungs, that is, tuberculous infection.)

**Suggestions to Mothers and Nurses.**—Always feed immediately after vomiting. A tight abdominal band may give relief. Pulling the jaw downward and forward in a severe paroxysm should be tried, if no relief has been otherwise afforded. Do not cross or excite the child in any way.

**Whooping Cough Vaccine.**—The author believes in this, and has found it effective as a preventive, and when given in the early catarrhal stage, in large doses, lessens the severity of the symptoms. It is not a specific.

The vaccine should be as fresh as possible. Less than a week old preferably. Most have to depend upon the commercial vaccines, and these have given very good results.

**Immunity.**—One attack confers immunity.

**INFANTILE PARALYSIS ("POLIOMYELITIS").**

**Definition.**—An acute disease, only slightly contagious, affecting the brain, spinal cord and their membranes, and resulting, in the majority of cases, in paralysis, temporary or permanent.

**Cause.**—Accompanying organisms have been found which however, have not been proven to be the cause. It is a warm weather disease, and is transmitted by means of carriers.

**Most Susceptible Period.**—Under five years.

**The Incubation Period.**—Usually eight days.

**Contagious Period.**—It lasts until the acute symptoms are over.

**Symptoms.**—The disease masquerades in various forms—some so slight that, without the presence of an epidemic, or some paralysis, the attention is not drawn to them.

**Varieties.**—There may be a slight "upset" of the stomach or bowels, or a sore throat and very little temperature, which passes off with no symptoms of paralysis. Again, there is the same slight "upset," and, in a day or two a flaccid, (that is, flabby, or "boneless"), paralysis of an arm or leg is noticed.

At others, the same apparently insignificant train of symptoms occur and disappear, with an interval of from three to eight days of perfect health elapsing, which, suddenly, is replaced by all the acute symptoms of a serious illness. In this form there is high temperature, nervous manifestations, such as headache, stiff or tender neck, or spine, pains in the limbs, possibly vomiting, etc., and, after a short period, flaccid paralysis is noticed. The

acute symptoms may appear without any preliminary signs, or a child may be just "half sick" for a couple of weeks and then show signs of flaccid paralysis.

Various other paralyses may occur, such as paralysis of the diaphragm, of the muscles of the chest, or difficulty in swallowing may be the only symptom. The inflammation in the nervous system may be progressive or it may stop at any stage.

**Optimism.**—Except for some of the nervous manifestations, the symptoms described are those of almost any illness common to all children. Constant worry over every illness is, in all human probability, unnecessary, as the chances are, many thousand to one, that your child has nothing but an ordinary illness. Remember that the disease is not common and that very few children are susceptible to it, even if exposed.

**The Outlook.**—As to life, it is very good. In about thirty-five per cent., paralysis does not occur at all. When it does occur, many recover completely. All show improvement by recovery of many of the nerve cells and development of the unaffected muscles. Noticeable deformities are comparatively rare.

**Immunity.**—One attack confers immunity.

**Varieties of Paralyses in Order of Frequency.**—One lower extremity, both lower extremities, all extremities, one lower and one upper, or, one upper.

**Some Things, Concerning Which there is  
General Agreement.**

*An early spinal puncture for diagnosis and relief of pressure symptoms, absolute rest and no unnecessary handling of the patient during the acute stage, splinting of painful or affected limbs during the acute stage and for some time afterward, the length of time, depending upon the individual case, no active measure, such as massage or electricity, looking toward restoration, under six weeks. Splints or plaster-of-Paris bandages are often necessary to prevent contractures during this time.*

The giving during the acute stage, of any serum, whether immune horse serum or convalescent serum, depends upon its availability and the individual medical opinion as to the value of serum treatment.

**CEREBROSPINAL MENINGITIS.**

**Definition.**—A highly acute, slightly contagious disease of the brain, cord, their membranes and nerves, accompanied by severe nervous manifestations, and is caused by the meningococcus (the diplococcus intracellularis of Weichselbaum).

**Age.**—About one-half the cases occur in children under five years of age.

**Period of Incubation.**—It is not definitely known, but is probably from one to four days.

**Period of Invasion.**—As a rule it is absent, but there may be a day or two with symptoms suggesting "Grippe."

**Symptoms.**—Almost always the onset is sudden, with high fever, projectile vomiting, headache, severe pains in the neck or spine, hypersensitiveness to external stimuli, convulsions, delirium, stiffness (tonic spasm) of the back, neck and limbs, and later unconsciousness.

Minute hemorrhages, resembling fleabites, occur under the skin, usually of the neck, chest or extremities, in a small percentage of the cases during the first few days of illness. From these, the disease formerly derived the name of "Spotted Fever."

Paralysis may occur, but is not common or characteristic.

**Results.**—Sometimes blindness, partial or complete, deafness, arrested mental development, etc., follow the acute attack.

**Outlook.**—Before serum treatment, the percentage of deaths was from twenty to seventy-five per cent. The younger the child the more serious the outlook. Formerly nearly all infants died, but the majority may now be saved. In older children, the mortality has been reduced to between fifteen and twenty per cent. or even lower.

**Suggestions.**—The great importance of an early spinal puncture and, if a cloudy fluid is withdrawn, the immediate injection of the specific serum, can not be too strongly urged. Upon an early administration of the serum depends the patient's chance of recovery.

An effort should be made to use a serum which is appropriate for the special type of organism present.

**Immunity.**—One attack confers immunity.

**TYPHOID FEVER.**

**Definition and Cause.**—An acute contagious disease caused by the typhoid or Eberth's bacillus, with a more or less characteristic ulceration in the small and large intestines, enlarged spleen, "rose spots" on the skin and the presence, in the urine, blood and feces of the specific organism.

Unlike the other contagious diseases previously outlined, it is not acquired through the nose and throat by means of "droplet infection," or from the infected secretions of the nose, throat or ears of one who is ill. It is ingested in drinking water, milk or other foods which have become infected with the typhoid bacillus, carried there from the urine or feces of an individual who harbors these organisms, through unclean hands, infected utensils, or by direct pollution of some stream, spring, pool, (for swimming or other purposes), from which some water has been swallowed or drunk. It is a form of "contact infection," and is rare in any locality in which the water supply is pure.

The period of incubation is usually between a week and ten days.

**Susceptibility and Occurrence.**—It may occur in infancy, but is quite uncommon (about a half of one per cent. under one year; about six or seven per cent. under two years). It is not until after five years of age that it may be said to occur with frequency. Infants are protected by the use of boiled drinking water and boiled milk.

**Symptoms.**—The familiar onset, seen in older children and adults, that is, sluggishness, loss of appetite,

slight fever, headache, and heavily coated tongue, a "dragging around" state for a week or ten days at the beginning, is obviously not encountered during the first five or six years of life. In these children at first there is often nothing to suggest typhoid. The onset is frequently sudden with a high temperature of 103° and 104° F., nervous symptoms, such as mental apathy or semi-stupor suggesting meningitis, and symptoms of indigestion such as vomiting, diarrhea, loss of appetite, and in older children, headache.

Other symptoms modified in children are, enlargement of the spleen, which may be felt by the end of the first week; constipation or diarrhea; small "rose" colored spots appearing on the abdomen at the beginning of the second week, and lasting for a week or more; temperature which runs more uniformly high (less remittent) and subsides more rapidly, (often under two weeks), than in children nearly ten years or over, or in adults.

The complications of perforation of the bowel and hemorrhage are comparatively rare in children.

**Suggestions.**—The Widal blood reaction should be made in the second week, and an examination of the urine, blood and feces must be undertaken to detect the presence there of the typhoid bacilli.

Covering both urine and stools with five per cent. carbolic acid solution and soaking bedclothes, linens, etc., in the same for several hours, boiling linens for about forty-five minutes and separate washings of the same, are very important measures for preventing the spread of the disease.



The typhoid vaccine has established its place as a preventive against the disease and should be administered to all children before admission to summer camps, or before traveling through countries where the water supply is questionable.

**Immunity.**—A great amount of immunity is established by one attack, but another may occur.



## PART IV.

Dentistry.

Special Treatments.

Food Preparations.

Miscellaneous.



## CHAPTER XXXII.

### DENTISTRY.

#### Order and Average Time of Eruption of the Twenty Deciduous (Temporary) Teeth.

Two lower central incisors .....	6 to 9 months.
Four upper incisors .....	8 to 12 "
Two lower lateral incisors and four anterior molars .....	12 to 15 "
Four canines (upper—the eye teeth; lower —the stomach teeth), .....	18 to 24 "
Four posterior molars .....	24 to 30 "

At one year should have six teeth.

At eighteen months should have twelve teeth

At two years should have sixteen teeth.

At two and one-half years should have twenty teeth.

#### Permanent Teeth. (Thirty-two.)

Four first molars .....	6	years.
Eight incisors (replace temporary incisors) ..	7 to 8	"
Eight bicuspid (replace temporary molars)	9 to 10	"
Four canines, (replace temporary canines) ..	12 to 14	"
Four second molars .....	12 to 15	"
Four third molars .....	17 to 25	"

The molars are posterior to the bicuspid.

#### The Deciduous or Temporary Teeth.

It is best to call them deciduous teeth and not look upon them as temporary.

**Neglect of Teeth.**—It has seemed to the author and to many others who are interested in children, that the

deciduous (temporary or milk teeth) have been greatly neglected. An appreciation of the importance of proper attention to these teeth is now felt by all.

**Precautions.**—As much harm may result from bad deciduous teeth as from the permanent (rheumatism, heart diseases, etc.).

The proper eruption of the permanent teeth, depends largely upon the “dropping out” at the right time of the deciduous teeth. This in turn depends to a great extent, upon the normal absorption of their roots. The absorption is influenced by the care which we take of these teeth, by proper food, and the use of the tooth brush.

**Irregularities.**—Irregularities in the permanent teeth and deformities will occur if they are held back.

**Extracting Temporary Teeth.**—While retaining deciduous teeth until the time of their normal displacement aids in preserving the proper shape of the jaw, a bad deciduous tooth which is unsafe to fill, or is a menace to health, should be extracted. An appliance may be used in some cases to hold the space. As much care in filling the deciduous teeth, should be exercised as when filling permanent ones.

**Correction of Deformities.**—This should be done as soon as the child is found to need it, and should not be delayed until some special time—as when twelve years old.

**The Tooth Brush.**—Unfortunately its use does not enter seriously into the lives of many children, as it seems a waste of time. It should form a daily part of the morning and bedtime toilet. This again emphasizes the importance of proper food—plenty

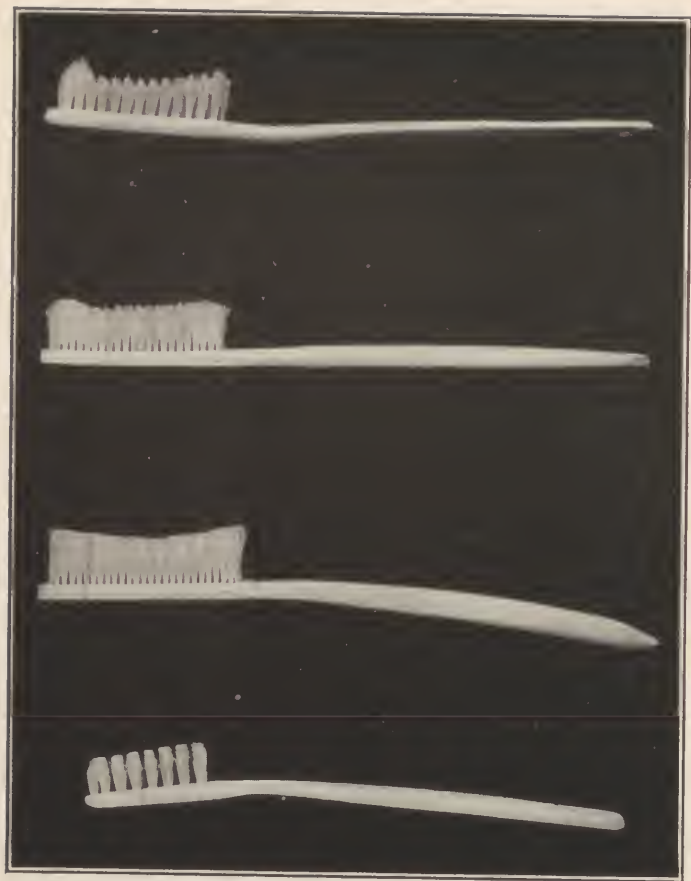


PLATE IX.—Examples of tooth brushes. The one at the bottom of plate is recommended by the author.



of "roughage" to act as a tooth brush, and salivary stimulants, as well as food which is rich in salts, which should be given at an early age. (Five months.)

**Selection.**—The selection of a tooth brush and its proper use after meals and at bedtime is important.

**Variety.**—One which is small, with no "hump" of bristles on the end, and with considerable space between each set of bristles for cleansing and air.

There are one or two tooth brushes, only, which comply with all requirements. (See Illustration.) It should be small enough to brush the sides of the teeth between spaces devoid of teeth.

**Size.**—This is the smallest size made, for the younger children, the same, or the next to the smallest, for a child of any other age.

### Very Excellent Suggestions on Preventive Dentistry.

Advocated by Louise C. Ball, D.D.S., New York City.

**Mouth Wash for Older Children.**—One level teaspoonful of salt, to an almost full glass of warm water. Hold some in the mouth for five minutes morning and evening; also rinse the mouth and gargle. The same solution is used for cleaning the teeth. A tooth paste is important only if this has been neglected. A paste is better for young children than a powder.

**Dentists.**—Take the child to a dentist at three years of age. The teeth should be hand polished once a month until fourteen years of age. This furnishes

an opportunity for detailed examination of every tooth and detection at once of anything that needs attention.

**The X-ray.**—The teeth should be X-rayed at six years, so as to detect any irregularity or tendency to crowded teeth. This will prevent much future discomfort and the expense of attending regulating operations.

**Roughage Foods.**—The use of coarse foods, as dry toast (with butter), apples, vegetables, etc., to clean the teeth is advised. Orange juice will stimulate the alkaline or neutral saliva. Milk of magnesia will not.

**The Way to Use a Tooth Brush.**—An up and down motion which will include the upper and lower gums, not a circular or horizontal motion.

For cleaning the front teeth (upper and lower), and the inner surface of the lower teeth, hold the brush so that the thumb and little finger are on one side of the handle, and the three remaining fingers are on the other. In cleaning the inner surface of the front teeth, (upper and lower), brush toward you; in cleaning the side teeth, brush from side to center. When brushing the inner surface of the upper teeth, hold the handle of the brush with the thumb on one side and four fingers on the other. Always brush the cutting surface of the teeth.

Dental floss should be used between the teeth for cleaning, once a week.

### **Mother's Home Kit for Preventive Dentistry.**

This includes a tooth brush, dental floss, and a special holder, for using dental floss. The spaces be-



tween the teeth may by this means be polished with one hand instead of requiring both, as is ordinarily the case.

**An Orange Stick and a Tube of Cleaning Paste.**—The end covered with cotton is used to polish the surfaces of the teeth with the aid of a cleaning paste.

**Detecting Solution.**—When painted with a camel's hair brush over all surfaces of the teeth, it stains tartar and neglected parts more deeply. By this expedient, we may know if the child has been cleaning his teeth properly. It also indicates where our special efforts are to be directed in polishing with orange stick and cleaning paste. The detecting solution may be very readily removed.

**Steel Probe.**—This is long and slightly curved on the end. It is used for detecting the beginning of cavities. If a dark speck, gently touched with this feels soft, it is a cavity. The child should then be taken to a dentist, where only a very minute filling will be necessary.

**Pair of Pliers.**—Convenient for removing loose bristles, etc., from between the teeth.

**Use of Home Kit.**—The explanations under each article, suggests the method to be employed. It will at first take longer, but the time may be reduced to ten or fifteen minutes for each child, once a week. When we consider the importance of this as a preventive measure, the saving of suffering and expense, the time so employed, compared with that spent in the pursuit of entertainment, is very insignificant.

## CHAPTER XXXIII.

### SPECIAL MEASURES.

#### Temperature and the Taking of Temperature.

**Significance.**—Infants under one year and children under two years are prone to have high elevations for trivial causes. This is true of some, much more than of others. The normal is  $98\frac{3}{5}^{\circ}$  F.

**Ways of Taking Temperature.**—There are only two reliable ways—by mouth and by rectum.

**By Mouth.**—When the child is old enough not to bite the thermometer, and to hold it under the tongue with the lips closed for three minutes. The mercury should be covered.

It has been found helpful to tell the child to “keep the thermometer pointing upward.” Unless the tongue is over the thermometer it will slant downward.

**Cleansing.**—Soap the thermometer and wash under cold running water. Shake down to about ninety-seven degrees before using.

**By Rectum.**—While it is an accepted fact, that the rectal temperature in the majority of children, is one to one and one-half degrees higher than by mouth, it is not true of many others. It is wise to rule out all possible causes before accepting a rectal elevation as normal. The author has found in a large majority of his cases that a well child's tem-

perature is  $98\frac{3}{5}^{\circ}$  F., by rectum, the same as by mouth.

The thermometer is cleansed in the same way, well covered with vaseline, and inserted so as to cover the mercury, and left there, for three minutes.

### Collection of Urine for Examination.

This is of great importance, the procuring of which has been met with unnecessary difficulties. The urine of every sick child should be examined, and will often make clear, a previously obscure condition. Frequently, there may have been no symptoms pointing to trouble in the urine or kidneys, but an examination of the urine reveals pus and blood. (Pyelitis.)

#### In the Boy.

**Ordinary Methods.**—This is usually easier, but it need not be so. Placing on a vessel just before it is thought that urination is likely, dangling the feet in hot or cold water while conveniently holding the vessel, will often bring results.

Cotton placed over the external genitals may catch the urine.

**Other Methods.**—The penis inserted into a glass test tube which is held in place with adhesive plaster. The objection to this is that it may break.

**A Better Way is to Use a Rubber Condom.**—Adhesive plaster is fluted around the opening of the condom, and the penis and scrotum, encased in this. The adhesive plaster must adhere completely to the skin around the parts. A rubber glove fluted with adhesive plaster may be used in the same manner.

**After Collecting.**—The urine is to be put into a clean, scalded bottle, into which a clean cork is placed tightly.

**In the Girl.**

**Ordinary Means.**—The use of the vessel should be attempted. The cotton also may be tried, but it is neither a good nor an efficacious method. Pressure over the bladder is often effective

**The Glass Bird Seed Receptacle.**—This is a bottle, of crystal glass, with a triangular base which stands on end, with a hole in the top, like an ordinary bottle. On the flat surface is a circular opening, about one inch in diameter. The flat surface of the bottle, with the neck upward, is placed next to the skin, the circular opening covering the upper part of the genital slit. A cork is placed in the hole in the neck of the receptacle, which is held in place by means of the diaper “snugly” applied.

**Other Methods.**—A rubber condom may be “fluted” with adhesive plaster. This is placed around the genitals, so that the opening will include the whole vulval slit,—the upper part slightly above it, and the lower part extending between the genitals and the rectum. In very small infants the rectum will have to be included in it. In this case a stool will spoil the specimen. The glass birdseed receptacle has not this objection, and is most satisfactory.

**Another Way.**—A rubber glove may be “fluted” around the opening with adhesive plaster and used in the same way. The adhesive plaster must adhere completely to the skin around the parts.

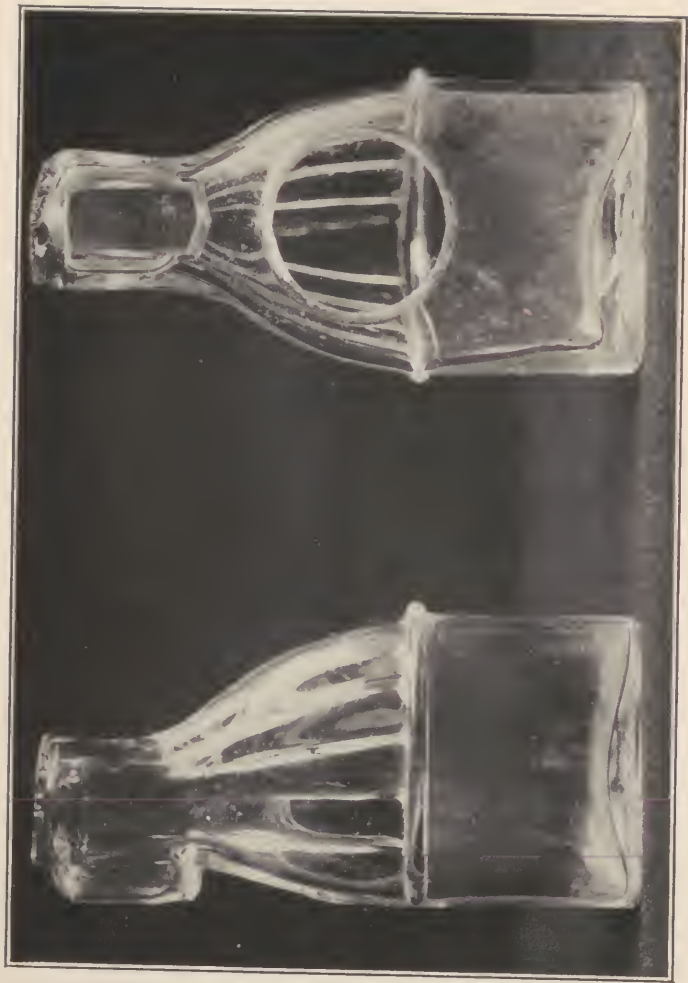


PLATE X.—The glass birdseed receptacle, side and front views, for collecting specimen of girl infant's urine.



### Catheterization.

**Boy Infant or Older Child.**—This should be done only if absolutely necessary. Wash the meatus with sterile water. Use the smallest size rubber catheter for infants or young children. Boil the catheter (new preferably) for three minutes. Drop glycerine on catheter and insert until urine flows.

**Girl Infant or Older Child.**—Use the smallest size rubber catheter. Boil the catheter (new preferably) for three minutes. Separate the vulva and sponge carefully with sterile water and gauze. The urethral opening is immediately above the vaginal orifice, which may be covered by the hymen. In infants under two years, the urethral orifice is separated from the vagina by no more than one-eighth of an inch; in older children by almost one-fourth inch. Insert the catheter carefully until the urine flows. Catheterization should be done only when absolutely necessary.

## CHAPTER XXXIV.

### Examination of Child—Foreign Bodies.

#### EXAMINATION OF THROAT.

**Importance.**—This cannot be overestimated. If diphtheria is present its detection and the early use of antitoxin may mean the saving of the child's life.

**Position.**—The mother or nurse should sit squarely on a chair placed in front of a window (daylight is the best), with the back of the child's head against her chest, the forehead being held by her right hand, place the left hand around the child's body, which must include the arms. If obstreperous the child's legs may be held between the knees. Another very good method, is for the nurse or mother to bring their arms forward under the arm pits of the child and grasping each of the child's hands, place them on the sides or top of its head. This will hold the hands, and steady the head and body. The remainder of the procedure is the same.

#### EXAMINATION OF THE EARS.

This is a trying procedure with most children, until they discover that it does not hurt. It is necessary for them to be held firmly, so that the drums may be seen. Artificial light is the best.

**Position.**—The child is seated upon the mother's or nurse's lap with the opposite side of the face or ear to be examined, against the chest. One arm is





PLATE XI.—Another position of child for examination of throat.



placed around the child's body, which must include the arms, while the other hand is placed on the head above the ear, to steady it.

### EARACHE.

**Seriousness.**—It is well not to think of it as “only an earache.” While it may not amount to anything, in almost every case, it means an inflammation of the middle ear, due to infected or enlarged tonsils, or adenoids. It is only a small “step” toward pus, with the rupture of the ear drum (“running ears”). The possibility of a mastoid's occurring is always present.

**Suggestions.**—A physician should always be sent for to examine a child with a prolonged pain, or a running ear. Relief, and a curative measure (in many cases in the early stage), may be obtained, with hot water in a fountain syringe. The water (one or two quarts), must be from 100° F. to 110° or 115° F. It is well to increase the temperature gradually so as not to alarm the child. The syringe is placed not more than six inches above the ear so that there will be very little force. A medicine dropper may be used on the end of the rubber tubing. With the child on the lap, or lying in bed, hold the head away from side to be douched. The nozzle or medicine dropper is merely placed so that the water will flow gently into the ear, and out into the pan or rubber cloth held under the ear.

Lying on a hot water bottle will also give relief. Keep cotton in the ears between treatments and avoid drafts.

**SWALLOWING FOREIGN BODIES.**

**Cathartic.**—Not to be used. The foreign body will probably do no harm in any case, and it is best for it to be coated with food, as it passes slowly through the intestine. The feeding of thick bread and milk, or mush afterwards, does good in some cases.

**Foreign Body in the Throat.**—Turn the child with the head hanging down, and with the finger in the throat, try to pull out the object.

**Foreign Body in the Ears or Nose.**—If these cannot be easily seen, make no attempt to reach them. A physician should undertake their removal.

## CHAPTER XXXV.

### MEASURES WHEN SICK.

#### Simple Enemas.

**Varieties and Methods.**—Two quarts of water, temperature of 101° F., in a fountain syringe, which is placed not higher than two feet above the child. The bulb syringe is little better than a suppository, and may be dangerous because of too much force.

**Position of the Child.**—Best on its back, on the mother's or nurse's lap. In older children lying on the side.

**Ingredients.**—Soapsuds (castile or ivory soap), salt or baking soda (four level teaspoonfuls of either).

**Precautions.**—The smallest sized rectal nozzle is the most satisfactory. The catheter is apt to double up. Do not permit more than one pint of water to flow into the rectum without its being passed. Remove nozzle, and reinsert until all the fluid has been given.

#### Asafetida Enema.

Persistent gas or distension may often be relieved by enemas to which milk of asafetida has been added. (One to two level tablespoonfuls to the quart of plain warm water.) Use a catheter.

#### Purgative Enemas.

One quart of warm water. One to two tablespoonfuls (level) each, of Epsom salts, glycerine, and milk of asafetida. Use a catheter.

### **Irrigation of the Large Bowel (Colonic Flush).**

**Method.**—Fountain syringe, same precautions as simple enema, salt or baking soda—but use a catheter. (A number eighteen to twenty French.) The child should lie on its side. A larger amount of water may be required.

**The Temperature of the Water.**—For reducing the temperature (fever) it is about 98° F.

### **Rectal Feeding (Retention Enema).**

**Method.**—The ingredients are best given warm, and in a starch solution made thin enough to run. A catheter or rectal tube (number eighteen to twenty French) must always be used and is to be inserted four or five inches. The fluid is best given through a funnel, attached to a rectal tube or catheter. This is better than a fountain syringe. Compress the buttocks for a time (at least ten minutes after the fluid has entered the rectum.) Hold the funnel only a few inches above the rectum, so that the fluid will run slowly.

If a fountain syringe is used, give slowly and hold only six inches above the child. It should not be used unless a funnel can not be procured.

**To Make Starch Solution.**—Proportion of one and one-half level teaspoonfuls of Oswego starch to enough cold water (one to two tablespoonfuls), in which to dissolve the lumps. Pour one tumblerful of boiling water over it. Place over the full flame until it boils well. Turn down the flame and let it simmer until clear. Stir occasionally to prevent burning. Strain through cheesecloth while

hot. Mix the amount of starch to be injected with the ingredients to be used.

**Murphy Drip.**—Apparatus for.—A can, Kelly bottle (made of glass, showing ounces), a fountain syringe; rubber tubing; Murphy drip bulb, (on each end of which is placed the rubber tubing); stop cock (to regulate the number of drops); glass tubing, with one end pointed (to connect the tubing with the catheter); catheter.

Directions.—Before starting Murphy drip, wash out bowels with tepid water containing three level teaspoonfuls of either salt or baking soda. Temperature of water for Murphy drip about 110° F.; try on wrist. Wrap can with heavy bath towel. Let tubing rest upon hot water bottle to keep warm. After inserting catheter hold same in place with strip of adhesive plaster fastened to each side of buttocks.

Number of drops—between twelve and twenty-five to the minute.

Continue “drip” for three hours; turn off for one hour. Alternate in this manner while satisfactory.

If fluid “backs up,” stop flow by means of stop cock. If condition is not remedied, remove catheter. Reinsert when assured that there is no obstruction.

Note: The administration of a fluid in starch solution (Retention Enema), when given by rectum in quantities of two or three ounces every three or four hours will often be retained when other methods are unsuccessful.

### **Stomach Washings (Lavage).**

**Method.**—Use a number twenty French catheter, connected with a rubber tubing by means of a glass connection. A glass funnel is attached to the tube. Depress the tongue with the index finger of one hand and quickly push the tube down into the stomach, that is, down the back of the throat, usually a distance of eight or nine inches.

A cork or smooth piece of wood may have to be inserted between the jaws of a child who has teeth. Invert the funnel over a basin, on the floor, into which the contents of the stomach will escape. Keep the basin low.

To wash the stomach, raise the funnel and pour in the solution to be used. The amount at one time is about two ounces more than the child is months old. Invert the funnel over the basin, before all the fluid has passed out of the funnel. Proceed as before until washings come back clear. The procedure is not difficult or dangerous. The child is held as for examination of the throat.

### **Stomach Feeding (Gavage).**

The same apparatus is used as for stomach washing. First, wash out the stomach as previously described. Next introduce the amount of food ordered, while the tube is in position.

### **The Hot Bath.**

**Method.**—The temperature of the water is one or two degrees warmer than the child.



**Time.**—Five minutes—cold cloth or icebag placed to the head. If followed by a slow alcohol sponge, the child's temperature is usually reduced. Unless ordered by the physician, they are much safer for infants than the cold pack. The hot bath may be given without the alcohol sponge, in case of collapse.

### **The Tepid Sponge.**

Sponge slowly on the bed with water, the temperature of which is about 99° F. Reduction is accomplished by means of evaporation.

### **The Cold Pack.**

**Method.**—Wrap the child in a blanket wrung out of water about 100° F. Place an icebag on the head and a hot water bag to the feet. Rub the child through the blanket with ice for about five minutes. Take the rectal temperature at least twice during the procedure. If it has dropped to 99° F. stop at once. Also watch the child's pulse. Put the child to bed, wrapped in the blanket and leave for an hour. In case of collapse, the child must be removed from the wet blanket, dried, covered, and hot water bottles applied.

### **Mustard Bath.**

Powdered mustard may be added to the bath, as described under convulsions, in the proportion of about one level tablespoonful to the gallon.

### Irrigation of Throat.

**Position of Patient.**—If lying down, place on side somewhat diagonally across bed with head slightly over edge of the bed and without a pillow. If in a sitting position, child bent well forward with chin upon chest.

**Procedure.**—Hang fountain syringe, containing one quart of comfortably hot water containing one and one-half teaspoonfuls (level) of either salt or baking soda, about three feet above child. No liquid need be swallowed. Stop occasionally. Point nozzle toward upper corner of mouth, pressing down tongue with finger or tongue depressor if necessary; basin under mouth.

### Irrigation of Nose.

**Caution.**—Do not use on a struggling child. Position of child, lying on stomach with face and rest of body same as for throat irrigation. If in sitting position, same as for throat.

**Procedure.**—Hang fountain syringe, with same solution as for throat, six inches above child. Irrigate uppermost nostril. When completed, if lying down, turn patient upon opposite side for other nostril. A basin is placed under nose or mouth. Breathing is accomplished through the mouth.

For irrigation of the ear, see under Ear Ache.

## CHAPTER XXXVI.

### FOOD PREPARATIONS AND SOLUTIONS.

**Beef Juice.**—Broil a steak very rare, that is, "sear" the outside, cut into small pieces, place in a lemon squeezer or meat press, and press out the juice; add a little salt.

**Chicken, Mutton, or Beef, Broth.**—Chicken, mutton or beef, one pound; cook three hours with one quart of water; make up to one quart; cool; remove fat and add salt.

**Scraped Beef.**—Scrape rare meat with a spoon or knife, shape into pat and broil on a hot, dry pan. Season with salt and butter.

**Junket.**—One quart of fresh milk. Heat to 100° F. Add two tablespoonfuls of sugar and a half teaspoonful of lemon, (if desired); then add one junket tablet dissolved in two tablespoonfuls of water. Mix quickly, and turn at once into a serving dish. Stand the dish in any warm place for about twenty minutes, or until thoroughly congealed. Move without shaking, and set in a cool place until used.

**Beef Broth (II).**—One pound round steak. One quart of cold water. Remove all fat and wipe steak with a damp cheesecloth. Put it through the meat grinder, using the medium knife, and place in a saucepan. Add cold water and let stand one hour. Place on back of stove where it will

simmer, but not boil, for one hour. Strain and set in a cold place until needed.

**Chocolate (1).**—One-half cup of milk; one-half cup of water; one-half square of chocolate; one tablespoonful of sugar.

**Cocoa (I).**—One-half cup of milk; one-half cup of water; two teaspoonfuls of cocoa; two teaspoonfuls of sugar.

**Gingerbread (I).**—One-half cup of molasses; one-half cup of water; two and one-fourth cups of flour; one teaspoonful soda; one and one-half teaspoonfuls ginger; four tablespoonfuls melted butter; one-half teaspoonful salt.

**Molasses Cookies (II).**—One cup of molasses; one-fourth cup of butter; one-fourth cup of lard; two and one-half cups flour; two tablespoonfuls of milk; one tablespoonful of ginger; one tablespoonful of soda; one teaspoonful of salt.

**Rice Pudding (I).**—One-half cup of boiled rice; one-half cup of milk; one egg; one tablespoonful of sugar; one-fourth teaspoonful of lemon extract.

**Snow Pudding.**—One tablespoonful gelatin; one cup of sugar; three egg whites; one-fourth cup lemon juice; one and one-fourth cups of water.

**Vanilla Ice Cream (I).**—One quart of thin cream; three-fourth cup of sugar; one and one-half tablespoonfuls vanilla.

**Vanilla Ice Cream (II).**—Two cups of skim milk; one tablespoonful flour; one cup sugar; one egg; one quart of thin cream; two tablespoonfuls of vanilla.

**Cream Filling (I).**—Three-fourth cup of sugar; one-fourth cup of flour; two eggs; two cups milk; one teaspoonful of vanilla.

**Cream Filling (II).**—One cup of thick cream; one-third cup of milk; one egg white; one-third cup of sugar; one teaspoonful vanilla.

**Oyster Stew (I).**—One cup of milk; twelve oysters; two soda crackers; one and one-half tablespoonfuls butter. Seasoning.

**Oyster Stew (II).**—Eighteen oysters; one and one-third cups oyster liquid; five cups milk; four tablespoonfuls butter. Seasoning.

**Barley, Rice, Oatmeal or Wheat Water.**—To make barley, rice, oatmeal or wheat water, add one level tablespoonful of barley flour, rice (cracked), oatmeal, or wheat flour, to one pint of water. Boil at least forty minutes; add water to replace evaporation and strain through cheesecloth. (If Robinson's barley is used, boil fifteen to twenty minutes).

**Cereal Jellies.**—Oatmeal, four ounces, is added to a pint of water, and boiled for three hours in a double boiler. Enough water is added to form a thin paste, when cooking is completed. While hot this is forced through a colander (strainer) and a semi-solid mass is formed.

**Barley Jelly and Wheat Jelly.**—Made in the same way, using barley flour, or cracked wheat instead of oatmeal.

**Cereal Gruels.**—Same as cereal jellies, except, add one to two ounces of the cereal to the same amount of water (one pint).

**Albumin Water.**—Take half cup of cold water; add the white of one egg and a pinch of salt. Stir thoroughly. A half teaspoonful of sugar and orange, or lemon juice may be added if ordered.

**Buttermilk in the Home.**

(A)—One quart of fresh milk; two cups of hot water. To this add one lactic acid tablet, and allow to stand at room temperature for from fifteen to twenty-four hours, or until coagulation has occurred. If a scum has formed remove with a spoon. Use an egg beater thoroughly, then strain through cheesecloth. Bottle and put on ice at once.

(B)—If a preparation from skimmed milk has been ordered, take one quart of fresh, previously boiled, skimmed milk and add eight ounces of water, and one lactic acid tablet, and proceed as before.

**Albumin Milk (Protein Milk, Casein Milk, Eiweiss Milk).**

There are several preparations of Protein Milk in powdered form, which may be readily procured. With these, albumin milk is very easily prepared in the home.

**Albumin Milk (Finklestein).**—One quart of fresh whole milk, heat to a temperature of 98° to 100° F. Then add to this one teaspoonful of essence of pepsin, or one junket tablet, previously dissolved in a little cold water. Place in a water bath of 107° F., for fifteen or twenty minutes, until coagulated, and hang in a sterile muslin bag for one hour to drain. To the curd of one quart of milk add one pint of buttermilk, and rub through a copper gauze strainer three times. To this add two level tablespoonfuls of wheat flour, rubbed to a paste with one pint of water. Boil ten minutes, cutting back and forth constantly, not stirring, with a large wooden spoon, as otherwise, large curds will form.

If needed, water should again be added to bring the mixture up to one quart.

The early addition of three per cent. of a maltose dextrin compound is advised. Dissolve the sugar in a moderate amount of water, and add while the mixture is boiling. It must not be heated above 100° F. before feeding, or it will curdle.

Albumin milk may be easily prepared with preparations of the same in powdered or liquid forms, either of which may be readily procured.

**Skimming Milk.**—If just “milked,” put into bottles and cool rapidly, as suggested in method for caring for any milk. Allow to stand for four hours and remove the cream with a dipper, for this purpose.

**The Modified “Chapin” Cream Dipper.**—This is the best way. The dipper is small enough to enter easily the neck of any milk bottle. “Pouring off” the cream from the bottle is only “partial skimming,” and the same objection is to be urged against pouring the milk into a pan and then skimming. In using milk from the dairy, in the home, let it stand as long as practical, and remove in the same way.

**Chymogen Milk.**—Boil the milk for five minutes. Cool to 104° F. Add one teaspoonful of chymogen and stir for one-half minute. Allow to stand for twenty minutes. When it coagulates, beat it until the curds are finely divided. Do not heat above 100° F., when preparing the individual bottles for feeding.



**Peptonized Milk.**—Cold milk, one pint; sodium citrate, fifteen grains; peptonized powder, twenty-five grains; water, half cup.

Directions:—Mix peptonizing powder in half cup of cold water. Place in a glass jar and shake well; add one pint of cold milk and fifteen grains of sodium citrate; shake again and place jar in saucepan of hot water, temperature about 100° F. Mix thoroughly and keep at this temperature for ten or fifteen minutes. Put in cold Mason jar and place on ice.

Result:—Has quite a bitter taste.

(A) When the milk curds, it has been heated to too high a temperature.

(B) In heating for feedings, remember not to heat too much.

**Keller's Malt Soup.**—Eleven ounces of warm milk; two ounces of flour; two and three fourths ounces of Loefflund's or Borchardt's Malt Soup Extract; twenty ounces of water.

Directions:—To eleven ounces of warm milk, gradually add the flour (which has been rubbed to a thin paste with a little cold water), stirring constantly while adding it. Pour through a clean sieve or muslin. In another dish, dissolve two and three-fourths ounces of the malt soup extract in twenty ounces of warm boiled water. Then mix both solutions, put on the fire, and, while stirring constantly, boil for two or three minutes.

**Normal Salt Solution.**—One level teaspoonful of salt to one pint of warm sterile water.

**Five Per Cent. Glucose (Dextrose) Solution.**—To make a five per cent. glucose solution, add three



hundred and eighty-four grains (approximately six and one-third level teaspoonfuls) of Merk's glucose to a half pint of distilled water. Heat until thoroughly dissolved. Filter while hot. Then add enough water to make a pint.

**Five Per Cent. Solution of Sodium Bicarbonate.**—To a pint of cool or slightly warm, distilled water, add three hundred and eighty-four grains (approximately six and one-third level teaspoonfuls) of Squibb's sodium bicarbonate. Do not boil.

**Five Per Cent. Glucose and Sodium Bicarbonate Solution.**—Make each solution separately as directed, but use only enough water for each to make one pint when combined. Add the soda solution to the glucose solution after the latter is cool.

**Formula for Thick Farina Food.**—Skimmed milk, nine ounces; water, twelve ounces; farina, six tablespoonfuls; dextri-maltose, three tablespoonfuls.

Boil for one hour in a covered boiler. This is one part of farina to seven parts of fluid (three parts of milk to four parts water). It must be sufficiently thick to adhere to an inverted spoon when cooked.

**Dextrinized Gruel.**—Barley water, one pint; malt extract, one tablespoonful.

**Directions:**—To one pint of barley water, lukewarm, add one tablespoonful of malt extract. Stir from five to ten minutes. Bring mixture to a boil, and boil for just ten minutes.

**Malted Milk.**—One to two tablespoonfuls malted milk; few grains salt; two tablespoonfuls lukewarm

water; three-fourths cup warm milk or water or a mixture of both.

Mix first three ingredients until smooth. Add hot liquid gradually while stirring. Cream may be used with this as with coffee. Whipped cream may also be used.

**Raw Vegetable Juice.**—Finely cut up vegetables placed in a gauze sack. Put sack containing vegetables into a meat or other press and squeeze out the juice.

## CHAPTER XXXVII.

### TABLE OF FOOD VALUES.

The following is a table of the values of the fats, proteids and carbohydrates of different foods as found in ordinary household measures.

From Mary Swartz Rose, Ph.D.

By referring to this table, substitutions in any diet list may readily be made, while still retaining its approximate caloric or food value.

	One Hundred Calorie Portion.	Distribution of Calories.		
	Measure.	Protein	Fat.	Carbo- hydrate
Beverages:				
Buttermilk .....	1½ cups .....	33	13	54
Chocolate I (see recipes) .....	½ cup (scant).....	10	48	42
Cocoa I (see recipes) .....	¾ cup .....	14	39	47
Lemonade .....	1½ cups .....	.....	.....	100
Bread, Biscuit and Muffins:				
Baking powder biscuit .....	2 small biscuit .....	11	27	62
Bread, Boston brown .....	¾ inch slice, 3 inches diameter .....	10	10	80
Graham .....	3 slices, ¾ in. by 2 in. by 3¼ in. ....	14	6	80
White .....	2 slices, 3 by 3½ by ½ in. ....	14	6	80
Whole wheat .....	2 slices, 2½ in. by 2¾ in. by ¼ in. ....	16	3	81
Corncake .....	Slice, 2 in. by 2 in. by 1 in. ....	10	24	66
Crackers, graham ...	2 crackers .....	9	20	71
Oyster .....	24 crackers .....	10	22	68

	One Hundred Calorie Portion.	Distribution of Calories.		
	Measure.	Protein.	Fat.	Carbo- hydrate.
<hr/>				
Bread, Biscuit and Muf- fins ( <i>continued</i> ).				
Saltines .....	6 crackers .....	10	26	64
Soda .....	4 crackers .....	10	20	70
Popovers .....	1 popover .....	18	27	55
Rolls, French .....	1 roll .....	12	8	80
Sandwich, club .....	$\frac{1}{6}$ sandwich .....	15	69	16
Date and cream cheese .....	1 triangle, 3 in. by $3\frac{1}{2}$ in. by $4\frac{3}{8}$ in. ....	10	39	51
Toast, cream .....	$\frac{3}{8}$ slice toast and $\frac{1}{8}$ cup sauce .....	13	43	44
French .....	slice, 3 in. by 3 in. by $\frac{1}{2}$ in.	10	48	42
Waffles .....	$\frac{2}{5}$ waffle, 6 in. diameter ..	14	35	51
Zweibach .....	3 pieces, $3\frac{1}{4}$ in. by $\frac{1}{2}$ in. by $1\frac{1}{4}$ in. ....	9	21	70
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Cake and Cookies:				
Angel cake .....	piece $1\frac{1}{4}$ in. by 2 in. by 2 $\frac{1}{2}$ in. ....	12	1	87
Chocolate loaf cake..	piece $2\frac{1}{2}$ in. by $2\frac{1}{2}$ in. by $\frac{7}{8}$ in. ....	5	41	54
Cream puff shells ...	$1\frac{1}{2}$ puffs .....	10	68	22
Doughnuts .....	$\frac{1}{2}$ doughnut .....	6	45	49
Fruit cake .....	piece, $1\frac{7}{8}$ in. by $1\frac{7}{8}$ in. by $\frac{3}{8}$ in. ....	6	26	68
Gingerbread I (see recipes) .....	piece, 1 in. by $1\frac{2}{3}$ in. by 2 in. ....	7	21	72
Lady fingers .....	2—4 fingers .....	10	13	77
Macaroons .....	2 macaroons .....	6	33	61
Molasses cookies II (see recipes) .....	$2\frac{1}{2}$ cookies, $2\frac{1}{4}$ in. diam..	6	32	62
Oatmeal cookies ....	$\frac{3}{4}$ cooky, 3 in. diameter..	11	21	68
Oatmeal wafers ....	1 wafer, $2\frac{3}{4}$ in. diameter..	11	23	68
One-egg cake .....	$1\frac{3}{4}$ in. cube .....	8	32	60
Plain cookies .....	2 cookies, $2\frac{1}{4}$ in. ....	6	33	61
Sponge cake .....	piece, $1\frac{1}{2}$ in. by $1\frac{1}{2}$ in. by 2 in. ....	11	19	70
<hr/>				
Candies, Confections, Sugars:				
Chocolate fudge ....	piece, $1\frac{1}{2}$ in. by $\frac{3}{4}$ in. by 1 in. ....	2	20	78

	One Hundred Calorie Portion.	Distribution of Calories.		
	Measure.	Protein.	Fat.	Carbo- hydrate.
<b>Candies, Confections, Sugars (<i>continued</i>).</b>				
Chocolate, milk, sweetened .....	piece, 2¼ in. by 1 in. by ⅛ in. ....	7	58	35
Honey .....	1 tablespoon .....	1	....	99
Maple sugar .....	4 teaspoonfuls .....	....	....	100
Maple syrup .....	1½ tablespoonfuls .....	....	....	100
Sugar, white, granulated .....	2 tablespoonfuls .....	....	....	100
White loaf .....	3½ lumps (full size) .....	....	....	100
White, powdered ....	2 tablespoonfuls .....	....	....	100
<b>Cereals:</b>				
Cornflakes .....	1¼ cups .....	6	4	90
Cornmeal, cooked ...	⅔ cup .....	10	5	85
Farina, cooked .....	¾ cup .....	12	4	84
Grapenuts .....	3 tablespoonfuls .....	12	2	86
Hominy grits, cook'd	⅔ cups .....	9	1	90
Macaroni, cooked ...	1 cup .....	15	2	83
Oatmeal, cooked ....	1 cup .....	17	16	67
Popcorn, popped ....	1½ cups .....	11	11	78
Unpopped .....	⅔ cup .....	11	11	78
Puffed corn .....	1¼ cups .....	6	4	90
Puffed rice .....	1½ cups .....	9	1	90
Puffed wheat .....	1⅔ cups .....	15	3	82
Rice, steamed .....	¾ cup .....	9	1	90
Wheat, shredded ....	1 biscuit .....	13	5	82
<b>Custards, Puddings and Ices:</b>				
Apple tapioca .....	¼ cup .....	1	1	98
Boiled custard .....	⅓ cup .....	13	44	43
Brown Betty .....	⅓ cup .....	3	35	62
Chocolate blanc mange .....	¼ cup .....	8	33	59
Cottage pudding ....	slice, 1¼ in. by 2 in. by 2½ in. ....	7	26	67
Cup custard .....	⅓ cup .....	17	39	54
Lemon jelly .....	½ cup .....	9	....	91
Peach ice cream ....	¼ cup .....	4	51	45

	One Hundred Calorie Portion.	Distribution of Calories.		
	Measure.	Protein.	Fat.	Carbo- hydrate.
Custards, Puddings and Ices ( <i>continued</i> ).				
Rice pudding I (see recipes) .....	½ cup, scant .....	18	32	50
Snow pudding .....	⅔ cup .....	10	....	90
Vanilla ice cream, I..	2½ tablespoonfuls .....	4	63	33
Vanilla ice cream, II	¼ cup .....	6	55	39
Dairy Products and Fats:				
Butter .....	1 tablespoonful, scant ....	1	99	....
Cheese, American pale .....	1⅛ cube .....	26	71	3
Cottage .....	5½ tablespoonfuls .....	76	9	15
Full cream .....	piece, 2 in. by 1 in. by ⅝ in.	25	72	3
Neufchatel .....	2 tablespoonfuls .....	23	75	2
Swiss .....	slice, 4½ in. by 3½ in. by ⅝ in. (1½ in. cube)....	25	73	2
Egg and Cheese Dishes:				
Raw (in shell) .....	1⅓ eggs .....	36	64	....
Scrambled .....	¼ cup .....	20	76	4
Whites .....	7 whites .....	97	3	....
Yolks .....	2 yolks .....	17	83	....
Macaroni and cheese	½ cup .....	17	39	44
Fruits:				
Apple, baked, with tablespoonful sugar	½ large apple .....	1	3	96
Baked, with whip'd cream .....	½ serving .....	1	31	68
Fresh .....	1 large .....	3	5	92
Apple sauce .....	⅔ cup .....	1	3	96
Apricots, canned ....	3 large halves; 2 table- spoonfuls juice .....	5	....	95
Dried .....	9 halves .....	7	3	90
Dried, stewed ....	¼ cup .....	4	2	94
Bananas .....	1 large .....	5	6	89
Blackberries, fresh stewed .....	½ cup (50 berries)....	9	16	75
Cantaloupe .....	1 melon, 4½ in. diam....	2	4	94
Cherries, stoned ....	1 cup .....	5	9	86

	One Hundred Calorie Portion.	Distribution of Calories.		
	Measure.	Protein.	Fat.	Carbo- hydrate.
Fruits ( <i>Continued</i> ).				
Cranberry jelly .....	2 tablespoonfuls .....	0	1	99
Cranberries, fresh ...	2 cups .....	3	12	85
Cranberry sauce ....	$\frac{1}{4}$ cup (scant).....	...	1	99
Dates, unstoned ....	3—4 dates .....	2	7	91
Figs, dried .....	$1\frac{1}{2}$ , large .....	5	1	94
Grapes, Concord ....	1 large bunch .....	5	15	80
Grape juice .....	$\frac{1}{2}$ cup .....	...	...	100
Grapes, Malaga ....	22 grapes .....	5	15	80
Lemons .....	3 large .....	9	15	76
Olives, green .....	6—8 olives .....	1	83	16
ripe .....	6—8 olives .....	3	90	7
Oranges .....	1 large .....	7	2	91
Orange juice .....	1 cup .....	...	...	100
Peaches, fresh .....	3 medium .....	6	3	91
Canned .....	2 large halves, and 3 table- spoonfuls juice .....	6	2	92
Stewed .....	$\frac{1}{2}$ cup .....	2	...	98
Pears, canned .....	3 halves, and 3 tablespoon- fuls juice .....	2	4	94
Pineapple, fresh ....	2 slices 1 in. thick .....	4	6	90
Plums, fresh .....	3—4, large .....	5	..	95
Prunes .....	4 medium .....	3	...	97
Raspberries .....	$1\frac{1}{8}$ cups .....	10	14	76
Rhubarb, fresh ....	4 cups of 1 in. pieces ....	10	27	63
Stewed .....	$\frac{1}{2}$ cup .....	12	27	63
Strawberries .....	$1\frac{1}{3}$ cups .....	10	14	76
Meats, Etc.:				
Rib, lean, roasted ...	slice, 5 in. by $2\frac{1}{2}$ in. by $\frac{1}{2}$ in. ....	46	54	...
Round, lean, pot roasted .....	slice, 5 in. by $2\frac{1}{2}$ in. by $\frac{1}{4}$ in. ....	62	38	...
Round steak, stuffed.	slice, 3 in. diam., $\frac{1}{8}$ in. thick .....	39	49	12
Sirloin steak, lean, broiled .....	slice, 2 in. by $1\frac{1}{2}$ in. by $\frac{3}{4}$ in. ....	47	53	...
Sirloin steak, medium fat, broiled .....	slice, $1\frac{3}{4}$ in. by $1\frac{1}{2}$ in. by $\frac{3}{4}$ in. ....	31	69	...

	One Hundred Calorie Portion.	Distribution of Calories.		
		Protein.	Fat.	Carbo- hydrate.
	Measure.			
<b>Fish:</b>				
Codfish, balls .....	1 ball, 2 in. diameter .....	14	65	21
Halibut steak, broiled	piece, 3 in. by 2¼ in. by 1 in. ....	61	39	....
Mackerel, Spanish, broiled .....	piece, 3 in. by 2¼ in. by 1 in. ....	56	44	....
Sardines, canned ....	3—6 sardines .....	46	54	....
Lamb, chops, broiled	1 chop (piece 2 in. by 2 in. by ½ in.) .....	40	60	....
Leg, roast .....	slice, 3½ in. by 4½ in. by ⅛ in. ....	41	59	....
Mutton, leg, roasted.	slice, 3 in. by 3¾ in. by ⅛ in. ....	33	67	....
Pork, bacon .....	4—5 small slices .....	13	87	....
Ham, boiled .....	slice, 4¾ in. by 4 in. ....	29	71	....
<b>Poultry:</b>				
Capon, roast .....	slice, 4 in. by 2½ in. by ¼ in. ....	51	49	....
Chicken, broiled ....	same as above .....	80	20	....
Turkey, roast .....	same .....	36	52	12
With stuffing .....	¼ cup .....	9	48	43
Oysters .....	⅔ cup solid, or 6—15 oys- ters .....	49	24	27
Veal, cutlets, breaded ..	⅔ serving .....	30	52	18
Leg, roasted .....	slice, 2 in. by 2¾ in. by ⅛ in. ....	71	29	....
Kidney .....	slice, 2 in. by 2¾ in. by ⅛ in. ....	54	46	....
Liver .....	same .....	47	53	....
<b>Nuts (edible portion):</b>				
Almonds .....	12—15 nuts .....	13	76	11
Brazil nuts .....	2 nuts .....	10	86	4
Butternuts .....	4—5 nuts .....	17	81	2
Cocanut (prepared)	⅓ cup .....	4	77	19
Hickory nuts ....	15 nuts .....	9	85	6
Nut loaf .....	¼ cup .....	16	62	22
Peanuts .....	20—24 single nuts .....	19	63	18



	One Hundred Calorie Portion.	Distribution of Calories.		
		Protein.	Fat.	Carbo- hydrate.
Nuts, edible portion (continued).				
Peanut butter .....	2½ teaspoonfuls .....	19	69	12
Pecans .....	12 meats .....	5	87	8
Pine nuts .....	¼ cup .....	22	73	5
Walnuts, English ...	8—16 meats .....	11	82	7
Pies :				
Apple .....	sector, 1½ in. at circum- ference <sup>1</sup> .....	3	41	56
Cranberry .....	sector, 1¾ in. at circum- ference <sup>2</sup> .....	2	18	80
Custard .....	sector, 2 in. at circumfer- ence <sup>1</sup> .....	9	32	59
Lemon meringue ....	sector, 1 in. at circumfer- ence <sup>1</sup> .....	5	27	68
Mince .....	sector, 1 in. at circumfer- ence <sup>1</sup> .....	8	39	53
Plain pastry .....	¼ of one crust, 9 in. diam.	6	58	36
Rhubarb .....	sector, 1¾ in. at circum- ference <sup>1</sup> .....	5	18	77
Squash .....	sector, 2 in. at circumfer- ence <sup>1</sup> .....	10	25	65
Salads and Dressings:				
Banana salad .....	1 small serving .....	12	36	52
Boiled dressing ....	¼ cup .....	10	64	26
Cheese and pineapple salad .....	½ serving .....	9	58	33
Chicken salad .....	1 small serving .....	12	86	2
Coldslaw .....	1 cup .....	6	78	16
Egg salad .....	⅔ serving .....	14	85	1
French dressing ....	1½ tablespoonful .....	....	100	....
Fruit salad .....	¼ cup fruit; ½ table- spoonful dressing .....	3	75	22
Lettuce salad, with French dressing ...	1 small serving .....	1	95	4
Mayonnaise dressing	1 tablespoonful .....	1	97	2
Potato salad .....	½ serving .....	3	68	29
Sardine salad .....	⅓ serving .....	27	63	10

1 Pie 9 inches in diameter.

2 Pie 8 inches in diameter.

	One Hundred Calorie Portion.	Distribution of Calories.		
	Measure.	Protein.	Fat.	Carbo- hydrate.
<hr/>				
Salads and Dressings (continued).				
Tomato and lettuce salad .....	$\frac{1}{2}$ serving .....	3	86	11
Waldorf salad .....	$\frac{2}{5}$ serving .....	4	76	20
Sauces:				
Brown sauce .....	$\frac{1}{2}$ cup .....	14	49	37
Brown sugar sauce..	5 tablespoonfuls .....	.....	.....	100
Charlotte russe fill- ing .....	$\frac{1}{6}$ cup .....	4	74	22
Cream filling, I (see recipes) .....	$3\frac{1}{3}$ tablespoonfuls .....	10	24	66
Cream filling, II (see recipes) .....	$\frac{1}{4}$ cup .....	5	77	18
Hard sauce .....	1 tablespoonful .....	.....	50	50
Lemon sauce .....	$\frac{1}{8}$ cup .....	.....	30	70
Tomato sauce .....	5 tablespoonfuls .....	5	70	25
White sauce .....	$\frac{1}{4}$ cup .....	8	70	22
Soups:				
Asparagus, cream of	$\frac{1}{2}$ cup (scant).....	17	56	27
Baked beans, cream of	$\frac{1}{2}$ cup .....	15	45	40
Bouillon .....	4 cups .....	84	8	8
Celery, cream of ....	$\frac{1}{2}$ cup .....	11	61	28
Corn chowder .....	$\frac{2}{5}$ cup .....	12	43	45
Corn, cream of .....	$\frac{1}{2}$ cup .....	12	38	50
Green pea, cream of.	$\frac{2}{3}$ cup .....	16	46	38
Oyster stew, I (see recipes) .....	$\frac{1}{2}$ cup (scant).....	18	58	24
Oyster stew, II (see recipes) .....	$\frac{1}{2}$ cup (large).....	16	63	21
Potato .....	$\frac{1}{2}$ cup (scant).....	15	38	47
Spinach, cream of (for child'n spec'ly)	$\frac{3}{5}$ cup .....	16	56	28
Split pea .....	$\frac{3}{5}$ cup .....	26	2	72
Tomato, canned .....	$\frac{3}{4}$ cup .....	12	12	76
Vegetables:				
Asparagus, fresh ....	20 large stalks, 8 in. long	32	8	60
Asparagus on toast..	$\frac{2}{3}$ serving .....	13	46	41

	One Hundred Calorie Portion.	Distribution of Calories.		
	Measure.	Protein.	Fat.	Carbo- hydrate.
Vegetables (continued).				
Baked beans, canned.	$\frac{1}{3}$ cup .....	21	18	61
Lima beans .....	$\frac{1}{2}$ cup .....	23	5	72
Lima, buttered .....	$\frac{1}{4}$ cup .....	16	36	48
String beans .....	$2\frac{1}{4}$ cups of 1 in. pieces ..	16	36	48
Beets .....	4 beets, 2 in. diameter; 1½ cups, sliced .....	14	2	84
Cabbage, shredded ..	5 cups .....	20	9	71
Carrots .....	4—5 young carrots, 3—4 in. long .....	10	5	75
Cauliflower .....	1 very small head .....	23	15	62
Celery .....	4 cups of $\frac{1}{4}$ in. pieces ..	24	5	71
Lettuce .....	2 large heads .....	25	14	61
Mushrooms, fresh ..	22 mushrooms, 1 in. diam.	31	8	61
Onions, scalloped ...	$\frac{1}{3}$ cup .....	8	59	33
Parsnips, stewed ....	7 pieces, 3½ in. by 1½ in. by $\frac{1}{3}$ in. ....	10	7	83
Peas, creamed .....	$\frac{1}{2}$ cup (scant).....	18	37	45
Peas, creamed, green shelled .....	$\frac{3}{4}$ cup .....	28	4	68
Potatoes, sweet,				
baked .....	$\frac{1}{2}$ , medium .....	6	5	89
Glazed .....	$\frac{1}{2}$ , small .....	4	7	89
White, baked .....	1, medium .....	11	1	88
Boiled .....	1, medium .....	11	1	88
Chips .....	8—10 large pieces .....	5	63	32
Mashed .....	$\frac{1}{2}$ cup (scant).....	7	48	45
Raw .....	1, medium .....	11	1	88
Scalloped .....	$\frac{5}{8}$ cup .....	9	30	61
Radishes .....	3 dozen red button .....	18	3	79
Spinach, boiled,				
chopped .....	$2\frac{1}{2}$ cups .....	12	8	80
With egg .....	$\frac{4}{5}$ cups .....	22	60	18

## CHAPTER XXXVIII.

### MISCELLANEOUS SUBJECTS.

#### **Treatment When Poisons have been Swallowed.**

**Give at Once.**—Remember that, in almost any case, no matter what has been swallowed, milk, milk with whites of eggs, flour and water, lime water, baking soda and water, or milk of magnesia and water, should be given at once.

**Later.**—Often these must be continued, except when the after treatment consists of olive oil, linseed oil, or mucilaginous drinks, such as flaxseed tea, thick cereal gruels or arrowroot and water.

**Water.**—In most instances, water in large amounts is indicated.

**Emetics, Anything which will Cause Vomiting.**—(Such as soapy water, one to three teaspoonfuls of syrup of ipecac in several ounces of water, strong salt water, or mustard water.)

After giving the milk, milk with whites of eggs or soda water, etc., or the antidote, if there is one, an emetic should be given in every case, except only when some strongly corrosive substance such as caustic potash, ammonia, quick lime, lye, washing soda, or sal volatile, have been swallowed.

**The Stomach Tube.**—This will be used by the physician, whenever the stomach has not been sufficiently emptied by the emetic, except, also, when such strongly corrosive substances have been swallowed as those previously mentioned.

**The Antidote.**—Give this at once, if at hand, then follow with milk, egg whites, soda water, etc., and the emetic.

If the antidote is not to be had, proceed at once without it. It can be given later, if there is one.

Remember, that immediately diluting the poison, with milk, egg whites, lime water, or baking soda, and then quickly producing vomiting, by means of soapy water or some other disagreeable mixture, is much more important than any antidote.

List of Common Poisons with their best known names, also Antidotes and Methods of Procedure as shown in the following Tables.

Common Names of Poisons.	Antidotes.	Further Procedures.
Oil of Vitriol.	Milk of magnesia, lime water, soap suds and water, baking soda and water; all in large quantities.	Follow with flour and water, white of egg, barley or linseed water, baking soda and water. Stomach tube not to be used.
Caustic Potash Soda, Ammonia, Quick Lime.	Olive oil, linseed oil, cod- liver oil, lemon or orange juice.	Milk, whites of eggs, barley water, emet- ics (that is, something to make vomit). The stomach tube not to be used.
Lye, Washing Soda, Sal Volatile.	Same.	Same.
Corrosive Subli- mate (bed bug poison), White Precipitate.	Several whites of eggs.	Milk, whites of eggs, flour and water, ar- row root. After using an antidote, give soap and water, or two teaspoonfuls of syrup of ipeacac, to make vomit; or use stomach tube.
Bleaching Powder.	Tannin.	Same.

Common Names of Poisons.	Antidotes.	Further Procedures.
Lunar Caustic, Marking Ink.	Common salt and warm water.	Milk, and whites of eggs afterwards.
Carbolic Acid.	Epsom salts, two table- spoonfuls, in water, glauber salts, one tablespoonful, in water, soap and water, weak alcohol and water solution, or weak whisky and water solution.	Whites of eggs and flour. Make vomit, with soap and water or syrup of ipecac, or use stomach tube carefully.
White Arsenic, Fly Paper or Powder, Rough on Rats, Scheele's Paris Green (candy, wall paper), Colored Crayons, or Flowers.	Freshly made ferric hydrate magna, four teaspoonfuls every fifteen minutes until urgent symptoms are relieved.	Albumin water, barley or linseed tea, sweet oil, lime water. Wash stomach with tube, or give emetic (syrup ipecac, strong soap suds and water).
Tartar Emetic.	Strong green tea.	Encourage vomiting with large quantities of warm water or other warm drinks.

Common Names of Poisons.	Antidotes.	Further Procedures.
Blue Vitriol.	Whites of eggs, milk, flour, or sugar.	Encourage vomiting with large quantities of warm water or other warm drinks.
Chlorid, used in dyeing.	Milk and eggs.	Albumen water and mucilaginous drinks, such as thick flaxseed tea, thick gruels, arrowroot and water.
Copperas.	Baking soda, milk of mag- nesia.	Milk and mucilaginous drinks, such as thick flaxseed tea, thick gruels, arrowroot and water. Afterwards, castor oil for bow- els. Purgative.
Common Alum.	Baking soda.	Milk and plenty of warm water.
White Vitriol.	Lime water, soapsuds.	Milk and whites of eggs. Plenty of warm water.
Cream of Tartar.	Baking soda for bitartrate.	Milk, raw eggs and barley water; hot tea as stimulant. Syrup of ipecac, soap and water, salt and water, mustard water. Make vomit, or use stomach tube.



Common Names of Poisons.	Antidotes.	Further Procedures.
Bleaching Powder.	Lime water, milk of magnesia or baking soda.	Sweet oil, whites of eggs, milk and flour.
Match Heads, Ratsbane.	Ozonized turpentine (French Oil), half teaspoonful every half hour, for five or six doses.	Wash out stomach with 1% solution of copper sulphate. Milk of magnesia after stomach is emptied; albumin water, mucilaginous drinks, Epsom salts, baking soda.
Croton or Castor Oil, Turpentine.	Mucilaginous drinks, thick flaxseed tea, thick cereals, arrowroot and water, etc.	Albumin water, brandy, aromatic spirits of ammonia, half teaspoonful to three or four ounces of water, hot cloths over lower part of back and around the hips, for turpentine.
Paregoric, Laudanum.	Strong green tea (tannic acid).	Empty stomach quickly by emetics (mustard, one level tablespoonful to half pint of water, or soapy water); coffee, by rectum or mouth. Slap chest with cold, wet towels; cold to head, warmth to extremities, Artificial respiration, if necessary.

Common Names of Poisons.	Antidotes.	Further Procedures.
Cough Mixtures with Belladonna or Atropin. (Dilated pupils, flush on the skin.)		Empty stomach quickly by emetics (mustard, one level tablespoonful to half pint of water, or soapy water); coffee, by rectum or mouth. Slap chest with cold, wet towels; cold to head, warmth to extremities. Artificial respiration, if necessary.
Poisonous Mushrooms, or Toad Stools.	Strong green tea.	Emetic, cathartic, enema.
Alcohol (whisky, wine, brandy, gin, etc.).		Evacuate stomach with tube, or give emetic (soapy water, etc.); coffee, by mouth or rectum. Cold to head; heat to limbs.
Chloral Hydrate, "Sleeping Potions."	Milk of magnesia, lime water or baking soda and water.	Strong coffee, by mouth or rectum. Apply hot-water bottles; artificial respiration.
Illuminating Gas, Charcoal Fumes.	Strong green tea.	Fresh air, artificial respiration; hot coffee, by mouth or rectum.

Common Names of Poisons.	Antidotes.	Further Procedures.
Tobacco.	Strong green tea.	Emetics (soapy water, etc.), or use stomach tube; cathartic (Epsom salts or castor oil); strong coffee, by mouth or rectum. Keep lying down; artificial respiration, if necessary; mustard plaster over heart, warm wraps.
Worm Medicine.		Emetic (soapy water), cathartic (Epsom salts or castor oil); afterward strong tea or coffee, by mouth or rectum. Hot-water bottles, if necessary.
Strychnin (vermin killers).	Hot coffee or strong tea.	For convulsions: Inhalations of chloroform; chloral, by rectum, 5—15 grains (prescribed by physician); repeat in half hour, if necessary; tobacco enema; absolute quiet, room dark. Give cathartic; artificial respiration during convulsion; ice to spine.

**Accidents—Poisons from Insects or Weeds.**

**Hemorrhage.**—Try to control with pressure applied directly to the bleeding part. If this is not effective tie a bandage around the part above it. If it is a limb, pressing the calf upon the thigh, or the thigh upon the abdomen may stop the bleeding. The arm may be treated in the same manner.

**Cuts and Wounds.**—Clean with sterile water or full strength peroxide of hydrogen. Try to remove all particles of dirt. Dress with gauze, at first without an antiseptic powder, or only lightly with boracic acid powder. Do not use vaseline or an ointment on a cut or open wound, as it retards healing.

Never cover a wound with adhesive plaster, but keep the gauze in place with a bandage.

After the first dressing use as little water as possible.

A cut, when clean, may be closed with strips of adhesive plaster.

**Blank Cartridge Wound.**—All portions of wad must be removed at once. The wound must be left open, or if necessary, opened by a physician as far as possible, as the oxygen of the air is an enemy of the lock jaw bacillus. Lock jaw serum (antitetanus) should be given at once.

**Snake Bites.**—Tie a bandage tightly around the limb, between the wound and the body, and suck out the poison.

**Bites and Stings of Insects.**—Powder with baking soda, or apply strong baking soda solution, or aromatic spirits of ammonia freely to wound.

**Poison Ivy (*Rhus toxicodendron*).**—Apply externally on gauze saturated with:

Lead acetate one level teaspoonful to one ounce of fifty per cent. alcohol; or solution of potassium permanganate (made a port wine color.)

The attack may be shortened, or immunity established, by taking internally *Rhus toxicodendron* under the direction of a physician.

**Ring Worm.**—Prompt application to lesions, of a full strength tincture of iodine.

**Dog Bites (*Rabid or Otherwise*).**—Open wound and clean thoroughly. It is usually cauterized with full strength carbolic acid, followed by immediate application of alcohol.

Dress wounds in an open manner and do not cover with adhesive plaster.

Commence antirabic treatment at once on any suspicious case, or keep the dog under observation and start antirabic treatment when it shows the first symptoms. The dog should be killed and the spinal cord examined.

The same local treatment is applicable to bites of human beings or other animals.

**Burns.**—Excellent in an emergency is the immediate application of gauze saturated with equal parts of linseed oil and lime water.

### Artificial Respiration.

**Drowning (*Schafer Method*).**—Lay patient on the ground, with face downward, coat or blanket in front of chest, arms extended above the head, the

face to one side to permit the passage of free air. Loosen clothing and collar bands.

The operator kneels astride or beside, the prone figure and permits his hands to fall into the spaces between the short ribs. By letting the weight of his body, if an older child, or if younger, as much pressure as is necessary, fall upon his hands, which rest upon the patient, the air is forced out of the lungs; by relaxing the pressure, the air is drawn in. By pressing and relaxing, twelve to fifteen times a minute, artificial breathing is performed.

If the pressure does not bring out the water at once, wedge open the teeth, and pull the tongue forward.

An hour's work may be necessary before breathing starts. Continue the artificial respiration at intervals until the breathing is regular.

After this, commence rubbing the legs and body, toward the heart to promote circulation.

After the patient can swallow, give half teaspoonful of aromatic spirits of ammonia in half glass of water.

The Schafer method is given because it requires only one person to perform it.

### **Illuminating Gas Poisoning, Asphyxiation from Smoke, Electric Shock.**

(Sylvester Method).—Place patient upon the back, with coat or blanket beneath chest. Pull the tongue out with the fingers, or tie string tightly around tongue, which may be held in this position by attaching string around neck.

The operator stands at the patient's head and grasps the forearm midway between the wrists and elbows. Extend the patient's arms outward and upward at full length above the head, with traction (pulling), until they are in a straight line with his body. This creates a vacuum and the lungs expand to fill the vacuum.

Then bring the patient's arms slowly to sides and front of chest, making firm pressure upon the front of the chest, to force the air out of the lungs, fifteen to sixteen times a minute. At each procedure, count "one, two, three," slowly.

### Objectionable Habits.

#### Thumb Sucking.

**Dangers.**—It causes deformities of the mouth and teeth.

#### Measures.

**Drugs.**—These put upon the thumb seem to do very little good.

**Others.**—Aluminum mittens, bandaging the thumb or hand. The application with a bandage of a small, thin cotton covered piece of wood or (splint) to the arm in front of the elbow, permits of it's free motion, but absolutely prevents the hand from touching the face. This is the surest method of stopping the habit.

#### Pacifiers

**Dangers.**—The same as thumb sucking, and should be absolutely prohibited.

**The Eating of Dirt.**—The habit, if persistent, prob-

ably means some nutritional disturbance, such as anemia.

### Deformities.

#### Lateral Curvature of the Spine (Scoliosis).

**Causes.**—Congenital malformations; asymmetry of the hips, a short leg; diseases such as rickets, tuberculosis of the spine, or diseases of the bones or joints of the legs or arms; forms of paralyses, abscess in the pleural cavity (empyema), large abdominal tumors; habit or occupation; defective vision or hearing.

**Suggestions.**—Determination of the cause, that is, whether organic or functional (false postural) and the removal if possible by means of surgery. Treatment of the diseased condition, the application of jackets or corsets, corrective gymnastics, exercises and the elimination of whatever bad habits or hygienic conditions are thought to be causative factors. This should be undertaken only by an orthopedist—one skilled in the correction of such deformities.

The strained attitude constantly assumed by those in whom vision or hearing is defective, will eventually produce some curvature.

Desks or seats at school of improper height or construction are very harmful. All desks and seats in a given schoolroom should not be of the same height or size, that is, a small child should be given a lower desk and seat than a tall child. Generally, the back rest should slope slightly backwards, the desk should reach approximately to the waist line when in the sitting posture, the seat, of ample



length, must not extend to the bend of knees, and the feet should always rest comfortably upon the floor.

**Antero-Posterior Curvature of the Spine (Kyphosis).**

**Other Names.**—Round or Stoop Shoulders.

This is very frequently seen in young children, both boys and girls, in the form of round shoulders, flat chest, varying in degree, and prominent abdomen. It is essentially a bad posture, due to a lack of suitable exercises, that is, measures which will throw the shoulders back; and to improperly fitting underclothing, especially the custom of hanging drawers and elastic stocking supporters to a waist suspended from the shoulders. Corrective measures, an adequate waist or belt are discussed elsewhere under bodily mechanics.

**Flat Foot.**—This may lead to bad posture and as such should be corrected. A broken arch, or flat foot of one or both feet may cause indefinite pains in the legs, knees or back. This may be accompanied by nervousness and a tendency to tire easily. An orthopedist who will prescribe proper shoes and other corrective measures, should be consulted.



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